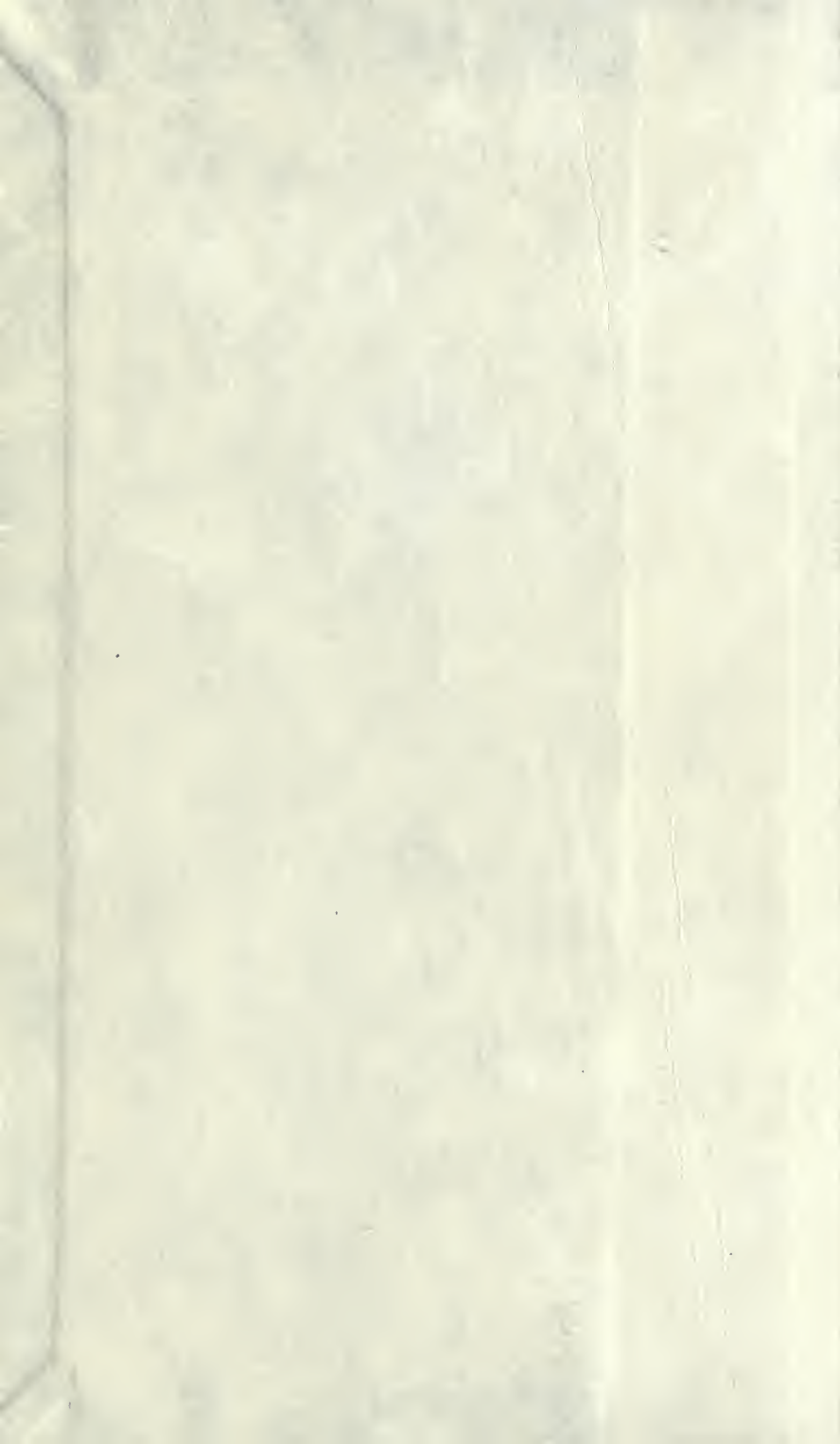


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ON THE

J. P. Hazzam.

CURATIVE EFFECTS

OF

THE ABSTRACTION OF BLOOD:

WITH RULES FOR EMPLOYING

BOTH LOCAL AND GENERAL BLOOD-LETTING

IN THE

TREATMENT OF DISEASES.

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BY JAMES WARDROP, M. D.

SURGEON TO THE LATE KING, &C. &C.

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ADVERTISEMENT.

The greater portion of the materials which compose this volume has been already published in detached parts. Eminent as the advantages, both of oral discourses and of periodical journals, have indisputably been in affording facilities for the diffusion of knowledge, the author yet ventures to hope that this collection of various practical doctrines, connected with the subject of Blood-letting in the treatment of disease, will not prove unacceptable.

Embracing some of the most important discussions in medical science, the following observations were not submitted to the profession without much care and deliberation, and the favourable reception which they obtained, has induced the author to collect and publish them in the present form. In accomplishing this, however, he has not failed to use his best endeavours to render the work more comprehensive, by dwelling at greater length on some points, and by giving additional cases, illustrative of several interesting topics.

Charles Street, St. James's Square.

October, 1835.

ON BLOOD-LETTING.

DISCOURSE I.

GENERAL OBSERVATIONS ON THE BLOOD.

Of the Blood; its functions; its "living principles;" its morbid changes; its quantity in man; its sensible qualities—smell, taste, temperature—The Coagulation of the Blood; its phenomena—Utility of Coagulation in stopping Hemorrhage; in uniting divided parts; in the process of reparation; and in the cure of Aneurisms—Deficiency of the coagulatory power in the Blood; sometimes hereditary; fatal cases; treatment—Consistence of the Blood—Component parts of the Blood; serum; red globules; coagulated lymph—The buffy coat.

The abstraction of blood from the human body is one of the most powerful of our therapeutic means, and the observations which I am about to make on this subject are to be considered chiefly as the result of my own experience in a great number of diseases amongst the different classes of society. Diseases assume an almost infinite diversity of form in the various ranks of the community, and this ought always to caution us against attempting to draw any general conclusions from examples of diseases only amongst a particular class of persons. Those who may have been in the habit of seeing diseases chiefly amongst the peasantry, or in the army, or in the navy, will be much struck with the various shades which the same complaints present in this metropolis, where patients are met with whose constitutions have suffered from indulgence in all the vices, and from all the mental excitement to which man is exposed amid this vast concourse of human beings.

A more fit opportunity cannot, perhaps, occur to dwell on the importance of carefully watching the effects of the same remedy in different examples of the same disease, and to point out how diseases are modified by the various circumstances and relations of each individual case.

Two examples of a disease scarcely ever occur which are precisely the same in all respects, and though they may resemble each other in many essential points, still they will be found to differ, either according to the period which the disease has existed—the age—the sex—the temperament of the patient,—or according to some other circumstance which demands consideration in the treatment, and which ought more or less to modify that

treatment. This observation applies in a particular manner to those diseases for which medicine possesses what is called a "specific" remedy. In treating these diseases, much depends on the state of general health in the individual before such specific medicines are administered. From want of such care, how often do we hear of the different preparations of mercury, bark, and iron, disagreeing with particular patients? In almost every instance this will be found to arise from some part of the alimentary canal being in a deranged state, which state ought to have been corrected previous to administering the specific remedy. The most useful medicines often fall into disrepute from want of such attention, whilst under other circumstances the dose must be changed, as well as the form of administering it. I do not mean to affirm that there are no individuals with whom particular medicines disagree. On the contrary, there are persons in whom cinchona, mercury, iron, and even milder drugs, as rhubarb, senna, and many saline medicines, have a decidedly pernicious effect. Such instances, however, are only to be considered as exceptions.

Diseases, I have already remarked, assume an infinite variety of character, not only in persons of different ages and constitutions, but also in people living in different districts of a country, and in different ranks of society. The limited observations, therefore, which are made on the treatment of patients in the wards of an hospital, have often had the imputation of being incorrect from the same remedies having been used with very different effects in other classes of the community. I have often heard medical men, whose practice has been confined to one class of persons, such as soldiers or sailors, and who have acquired great expertness and skill in treating that particular class—I have often heard such practitioners remark, how different were the systems which they found it necessary to pursue when they were called on to treat the diseases of other classes of individuals, particularly those of women and children, and such of the poor as are habituated to intemperance, and irregular habits of life.

I cannot dwell too strongly on the importance of this subject, as I think it may be distinctly traced that many errors in the treatment of diseases have arisen from one set of practitioners being accustomed to act with greater energy than is necessary, and following indiscriminately a particular system, and another who, from seldom seeing the more violent forms of disease, practise with timidity and indecision.

These observations, while they may be applied to the use of any remedy, are yet particularly applicable to that now under consideration, as there is no means more generally used, and more decided in its effects, than the abstraction of blood; and yet there is no point on which you will find greater diversity of opinion, and fewer distinct rules laid down, both as regards the circumstances and extent to which it should be employed. The practical errors to which I have now alluded, can only be corrected by a nice discrimination in individual cases; and the power of thus

discriminating can only be acquired by being in the constant habit of observing diseases amongst all classes of the community, and watching every description of disorder, more especially at an early period of the practitioner's life,—when the perceptive powers are most acute, and the mind has not yet been fettered by theoretical and hypothetical doctrines. A habit of examining diseases in the living body, and also a familiar acquaintance with the appearances of diseased structure, lead to a quick discrimination of the peculiarities of each individual case, and to a comprehensive knowledge of medicine.

Previous to entering on the consideration of the curative effects of abstracting blood, I propose to make some general observations on the natural qualities and the more remarkable changes of the sanguineous fluid.

The blood which is contained in the heart, in the arteries, and in the veins, is kept in a continual motion, called its *circulation*. During this movement, it undergoes certain regular and constant changes in a healthy animal. It receives new liquids, which are prepared by the process of digestion, and by cutaneous absorption; and it goes through changes in the lungs, where it is submitted to the action of the atmospheric air.

It travels throughout the whole body, furnishing to each organ certain materials, and it is deprived of other parts by the various secretions and excretions. That the blood should have been considered as the *life* of the body need not be wondered at; for if its passage to any part be destroyed, that part dies; and if beyond a certain quantity be extracted from the system, the death of the animal then follows. But the blood is not only necessary for the life, but for the growth, of every part of the body; and when any organ suffers an injury, it is the blood which is immediately employed for its reparation.

It is not, therefore, surprising that the blood should have been supposed to possess, in itself, a “living principle,” an opinion advocated by the ingenious Hunter. The principle of life we must suppose to begin in some one of the component parts of a living animal; and as we observe a chain of phenomena commencing from the entrance of the food into the stomach,—the conversion of that food into chyle,—the mixture of the chyle with the blood,—and the life and growth of the various parts of the animal from that blood,—is it not as probable that the “living principle” is first developed in the blood as in any of the other constituent parts of the animal?

In order fully to comprehend the various functions of the blood—the morbid changes which it undergoes—its influence in repairing injuries—and the effects of removing it from the body for the cure of disease, it will be proper first to consider its component parts, and the alterations in their qualities and proportions, all which form important indications in the diagnosis of diseases.

It was remarked by Dr. Heberden, that neither the blood nor the urine can afford criteria for the treatment of diseases. I need make no comment on such an unphilosophical opinion; and in proof of its erroneous tendency, refer to the works of Dr. Prout, wherein you will perceive how important a comprehensive knowledge of the chemical qualities of the urine is, in the diagnosis of the diseases, not only of the urinary organs, but of the whole system; and I have no doubt that if an equally philosophical mind were employed in the analysis of the *blood*, much important information regarding the morbid changes of that fluid, and the modes of remedying them, might be discovered. It has indeed been, of late, too much the custom to ridicule the humoral pathology; but this has not arisen from the attentive investigation of disease.

It is indeed extremely probable that the qualities of the blood are considerably altered in many diseases, though such changes cannot always be detected. We observe, for example, that there is a complete alteration of the serum in jaundice, and were it not for the change of its colour, we should perhaps have no evidence that the blood was at all altered in that disease. Odorous substances are also mixed with the blood, as balsams and asparagus are found in the urine.

With regard to the quantity of blood in man, Haller supposed that about fifty pounds of fluid circulated in a person weighing one hundred and sixty pounds, of which he considered twenty-eight pounds to be blood.

There has not, however, been yet contrived any mode of ascertaining the precise quantity of blood in different people, and it is not at all improbable that the quantity may vary much in the same individual at different times; neither is it at all certain, whether persons afflicted with diseases which are relieved by the abstraction of blood from the system, have had an undue quantity of that fluid.

It is generally considered, that, in proportion to the size of their body, young persons have a greater quantity of blood than adults, that adults have a greater quantity than the aged, and that fat people have also less blood than the lean.

That there is a great difference in the quantity of blood in different people would appear probable, from the circumstance, that if a succession of individuals be observed, afflicted with a similar disease, requiring the abstraction of blood for its cure, the quantity necessary to produce the same effect varies very much in every different instance, which may probably depend on differences in the quantity of the blood in each person.

The quantity of the blood varies very much in dead bodies. In general, it is abundant in those who have died from drowning, and those diseases which suddenly destroy life, as apoplexy, whilst those who die from lingering ailments have a very small quantity of blood.

Fresh blood emits a peculiar animal *smell*, and a thin vapour rises from it, which is nearly as insipid as water. It is glutinous to the *touch*, slightly saline to the *taste*, and its specific *gravity* is rather greater than that of water.

The *temperature* of the blood has not been found to vary much in different diseases, its natural heat diminishing a few degrees in the cold fit of ague; and increasing during inflammatory fever; and it has also been observed that the arterial is warmer than the venous blood.

Coagulation is one of the most important properties of the blood. Whenever blood is removed from its proper vessels, a process of coagulation takes place, and this coagulation happens sooner or later, according to particular circumstances.

Healthy blood coagulates in about three minutes and a half; the coagulation is usually completed in seven minutes, and in twelve minutes the mass becomes firm.

Blood coagulates in the ratio of its specific gravity; the lighter the blood the more slowly does it coagulate; and coagulation takes place more or less quickly, according as the orifice from which it flows be small or large, or the stream fast or slow.

Coagulation, too, is rendered slower by cold. We observe it take place quickly when the blood is received into a basin or flat vessel, and it coagulates soonest if the vessel be metallic. The rapidity of the coagulation also depends on whether it be the first or last portions which are abstracted, either from an artery or a vein.

Blood, which is kept at rest, coagulates more slowly than when it is stirred or agitated. It coagulates most quickly when drawn through a small orifice, and allowed to trickle down the arm. Strong action of the arterial system appears also to dispose the blood to coagulate slowly, but when the vascular action is diminished, as in fainting, coagulation takes place more quickly; and hence the assistance nature derives from syncope, in plugging up the orifice of a bleeding vessel.

The power of the blood to coagulate is essential for the performance of many important functions in the animal economy, whether in a state of health or disease.

1st. It is this quality of the blood which arrests the bleeding from a wounded vessel.

2d. Coagulation is the means of limiting spontaneous hemorrhages, by plugging up the open mouths of the vessels from which the blood is poured out.

3d. It serves to agglutinate the divided edges of wounded skin.

4th. It is important in the restoration of a lost part, by forming a covering to prevent the contact of the external air with the newly-exposed surface.

5th. It forms a parenchyma or matrix for the passage of new vessels, in the restoration and regeneration of parts that have been destroyed, as in the process of granulation.

6th. It is the power of coagulation which nature employs to prevent the bursting of an aneurismal swelling.

7th. And lastly, it is equally useful in plugging up the canals of diseased veins, and in agglutinating their wounds.

As regards *spontaneous hemorrhage*, it has been already observed, that this coagulating power of the blood answers a very important

purpose. There are many diseases wherein an effort is made by nature to relieve the general system, or a particular organ, of a superabundant quantity of blood, and little or no disposition is made to arrest its progress, until considerable debility or syncope supervenes, which has the effect of promoting the necessary coagulation. And, moreover, when blood is lost by a wound, the diminution in the quantity of the blood, by retarding the force of circulation, creates a power in that blood to coagulate more speedily, and thus arrests the hemorrhage. Hence is derived the useful practical lesson of encouraging a state of syncope, in order to assist in stopping hemorrhage. Indeed, when syncope does take place, during operations, we ought to watch the state of the wound, after the syncope goes off, before venturing to close it, for the vessels often begin to bleed, when, in order to prevent secondary hemorrhage, they ought to be secured by ligatures.

The importance of this property of coagulation in the blood, is also exemplified in repairing injured or lost parts of the body. When the skin, for instance, is divided, the cut edges adhere, and this adhesion is effected by a quantity of coagulated blood being interposed between the lips of the wound. Here the coagulated blood seems to act as a mere bond of union, and, I may observe, as a general rule, that whenever we are able to keep the lips of a wound together by the adhesive property of the blood alone, blood is the most preferable, and the best plaster.

Hunter believed, that the coagulum thus formed between the edges of a wound, possessed within itself a power of generating vessels, and thus became organised; but whether under the ordinary circumstances of reparation new vessels are formed in the midst of the coagulum, or whether they shoot into the coagulum from the adjacent surfaces, and are continuations of those which have been divided, it is certain that vessels meet together and anastomose freely in the coagulum, which, along with the nerves that are also supplied, ultimately constitute a complete organisation of what originally was a mass of coagulated blood.

The power of the blood to coagulate for the purpose of the restoration of parts, is exemplified when a portion of the skin is accidentally removed. In such a case, coagulated blood is first deposited on the wounded surface, and coagulable lymph is then effused by the arteries between the coagulum and the wounded surface, for the purpose of forming a matrix for granulations; the growth of which granulations and their subsequent cicatrization repairing the lost part.

The power of coagulation in the blood is also employed by nature for the cure of *aneurism*—one mode at least of spontaneous cure entirely depending on this process. When an aneurism is formed, the blood which fills the dilated part of the vessel, or the proper aneurismal tumour, does not circulate either in the same direction, or with the same velocity as in the natural condition of the vessel. The consequence is, that a process of coagulation of the blood in the tumour commences, and the extent of this process varies

according to the form, size, and position of the aneurism. In some cases, the tumour, however small, is found completely filled with a mass of coagulum, whilst in other cases the parietes of the artery have derived comparatively little additional thickness.

The coagulum, however it may be formed in aneurismal tumours, is not produced quickly, and consists in the deposition of one lamina of fibrin upon another, which fortifies the parietes of the tumour, and prevents its bursting. In cases where the aneurismal cavity is completely filled, an absolute cure of the disease is thus accomplished, the diseased portion of the vessel being rendered no longer liable to rupture. There is, however, a difference to be observed between the coagulum of an aneurism and a common clot of blood, though the distinction has not been clearly pointed out by pathologists.

This quality of coagulation in the blood, which, as I have endeavoured to show, is so powerful an agent in arresting hemorrhage as well as in accomplishing other restorative processes, has in some persons been found wanting, and hence bleedings, even from very small vessels, have not been capable of being stopped, and the hemorrhage has in some instances even proved fatal. As few such cases are recorded in medical works, it may be expedient, on this occasion, to bring together all the materials I have been able to collect on this interesting subject, and mention those examples of this peculiarity of the blood which have come more immediately within my own knowledge.

A gentleman found on several occasions great difficulty, and it often required many hours, before he could stop the bleeding occasioned even by superficial scratches, such as he sometimes met with in shaving. At length he accidentally received a slight wound on one of his fingers, and, every effort to arrest the hemorrhage failing, he expired.

I attended a patient where the introduction of a common seton needle in the side was followed by a fatal hemorrhage. The gentleman, who had an enlarged spleen, was advised to have a seton introduced, and the operation was performed in the usual manner by Sir Astley Cooper. Alarmed by the quantity of blood oozing from the wound, I was sent for to see the patient in the evening of the same day. On withdrawing the cord, pressure carefully applied with graduated compresses did not avail, and the hemorrhage being so profuse as to make it appear probable that some vessel of considerable size had been wounded, I thought it expedient to divide that portion of integument between the two perforations made by the seton needle. Having done this, I found that the blood issued from numerous orifices, and I secured no less than nine vessels with ligatures. Blood continued, however, to ooze from numberless small orifices over the whole surface of the wound, which every mode of treatment usually resorted to failed in arresting, and the patient died in a few days.

An interesting case, which I conceive to have been of the same description, is recorded by Mr. Blagden, in the eighth volume of

the Transactions of the Medical and Surgical Society. A young man, at different periods of his life, experienced great difficulty in stopping the bleeding from very slight wounds. At length he had a tooth extracted, which was followed by a violent hemorrhage, that neither styptics, pressure, the actual cautery, nor a ligature on the carotid artery, could control, and he died a week after this injudicious operation.

Mr. Wilson mentions a case where a child died from the bleeding of a small bite on the tongue. "I once had an opportunity of inspecting the body of a young person in whom, during life, a very small degree of pressure on any part of the skin produced the appearance called black and blue to that degree that the nurse, in dressing him, although a very careful woman, frequently left the impression of her fingers on different parts of his body. I have frequently seen the child with bruises of a livid colour, arising from falls, or even pressing against any thing with the slightest force; if a pin happened to scratch him, great difficulty occurred in stopping the bleeding, and the application of a single leech was productive of so much danger from the continuance of the hemorrhage, that the child's life was nearly lost. The complexion of the child was fair, and the appearance delicate, but not unhealthy; the pulse was full, but never hard, and the functions of the viscera generally seemed to go on as in other children. When between three and four years of age, the child bit its tongue; there was an impression of the teeth both on the upper and lower surface, but not very deep; the bleeding from the wounds continued for some hours, and having resisted all attempts to stop it, I was requested to see the child. I tried compression, and every kind of styptic, which produced a temporary, but no permanent effect, so that although the child lived five days, and during that period I saw it several times in the day, and frequently remained an hour or two with it, though I never failed in producing a temporary stoppage of the bleeding, it was renewed almost as soon as I left the house. I included the whole of the bleeding surface in a ligature, which for a short time stopped hemorrhage, but ulceration very soon took place, and a fresh bleeding occurred; to use the needle was now impossible, as the least puncture produced a bleeding almost as violent as that from the wound. I destroyed the surface by caustic, but the eschar was soon thrown off, and the bleeding renewed; the child became very weak, and, as the bleeding occasionally occurred during sleep, was watched over very carefully; but on one occasion, when, upon the supposition that he was asleep, he had not been looked at by the nurse for half an hour, she found that a very slight bleeding, not exceeding a teaspoonful, had taken place, and that the child was dead."

A curious case came within my own observation, where this deficiency in the coagulating power of the blood appeared to be *hereditary*. A family of which there were several branches, all found a particular difficulty in stopping the hemorrhage from any

very slight wound they might have accidentally received, and one of the brothers who had the common operation for fistula performed, died of a bleeding which was occasioned by the incision made in the operation.

But by far the most interesting case which has come within my knowledge, and where there was not only a want of power in the blood to coagulate, but where that peculiar state of the sanguineous fluid existed in many branches of the same family, occurred in the practice of Mr. Ward, surgeon, at Ewell, and I shall conclude this part of the subject by relating the circumstances as they were communicated by him to me:—

“The particular state of the boy’s constitution was manifested at two months old, when his arm was unusually bruised by a slight blow; and soon after this accident, there was much difficulty in restraining the hemorrhage occasioned by a superficial wound of the lip, and since then, whenever he has had a slight scratch. When he first came under my care, he had received a superficial wound in the palm of the hand a few days previous, and appeared much exhausted from hemorrhage. I attempted to restrain it by pressure, oil of turpentine, caustic, and by strong acetic acid; and, after giving him some aperient medicine, he took the diluted sulphuric acid in large doses, and astringents. The case becoming very desperate, for the hemorrhage continued unabated for two days after I first saw him, I now ordered a dose of superacetate of lead with opium every three hours, when the hemorrhage soon abated, but whether from the effect of the medicine or not I was unable to determine. It appeared to me to have had considerable influence. I formed some idea of the extent of the hemorrhage by having the arm placed above a plate, when twelve ounces of blood was collected in as many hours. This blood was not at all coagulated, and I could only observe clots when the blood was suffered to collect in folded linen, and then in very small quantities. The boy, after this attack, was completely exsanguined, suffered excessively with all the symptoms of protracted hemorrhage, and it was several months before he recovered.

“Since that time he has been under my care for a wound on the head, the hemorrhage from which was restrained with less difficulty, because pressure could be more effectually used, and at the same time I applied the lunar caustic freely. The bandage remained for more than a week, when an ulcer, having a very offensive smell, of about the size of a shilling, remained. This went through the natural process of granulation, and certainly healed more rapidly than under common circumstances. At this time the boy is well, and is in the eighth year of his age.

“The circumstances connected with this boy’s family are equally remarkable. His mother has a numerous offspring, and a brother, who is twenty-two years old, is afflicted in a similar way, and is also an almost constant sufferer with rheumatic gout. He had five uncles and two aunts; all his uncles had the same hemorrhagic tendency, three died from a division of the frænum linguæ, one

from the extraction of a tooth, and the other had the same disease, but died from some other cause !

“ The aunts had not that tendency in their persons: the one had three boys, two of whom were thus afflicted ; the other has two boys and two girls: both boys are afflicted in the same way.

“ From the above account, there can be no doubt of the *hereditary nature* of the disease; and it is a singular circumstance, that it is confined in this family to the male branches.”

The treatment of such cases becomes an object of interesting enquiry, and a successful analysis of the blood might perhaps teach us how to supply the deficiency in its power of coagulation. Those substances, which dispose the blood to coagulate, seem to have more effect in restraining the bleeding for a time than those which excite the artery itself to contract. Hence styptic applications have been employed; and these act by producing a chemical change in the blood with which they are mixed, and thereby form a cake or cement, to supply the place of a coagulum.

Sir C. Scudamore has recommended, with much confidence, the application of a saturated solution of the sulphate of alum for arresting hemorrhage. This salt, by producing an immediate coagulation of the blood, forms a coagulum at the mouth of a bleeding vessel, and thus accomplishes the first step of that process by which bleeding is arrested. The alum solution should be used warm, in which state it favours the coagulation, and this warm application is not to be considered inconsistent with the application of cold to the parts in the immediate vicinity of the bleeding vessels, the effect of which in diminishing the action of the vascular system is well established. The alum solution is to be applied either by a compress wet with it, moderately pressed on the bleeding part, or it may be injected into a bleeding cavity, such as the nose, uterus, bladder, or rectum.

Besides the cases to which I have now alluded, wherein a want of the power of coagulation in the blood seems to depend on a peculiarity of constitution, and in some instances on a hereditary taint, there are other causes which produce deficiencies in the power of the blood to coagulate.

In many diseases, where the solids are verging towards putrefaction, the disposition of the blood to form a firm coagulum is much lessened, as in typhus fever and scurvy. In animals, too, that die suddenly from over exertion, the blood does not coagulate. Most persons are aware of the difference in the blood of a hare which has been shot, and of one which has been run down by hounds; and in persons who are suddenly killed by lightning, or during violent fits of passion, or criminals by hanging, the blood does not coagulate. Alkalies, and common salt, entirely prevent the coagulation of the blood, whilst mineral acids, promote that process. Is it on this principle that the internal use of mineral acids is so beneficial in hemorrhages? Can this effect of sea salt on the blood account for the state of the sanguineous fluid in persons afflicted with sea scurvy? it being well known that this

complaint is the effect of eating salt provisions, and that the blood in such persons is unusually thin. We know that this complaint is also cured by the exhibition of acids. It is a characteristic feature in the menstrual flux, that the discharge does not coagulate like common blood, nor does it ever become putrid, until after artificial evacuation, as is exemplified in cases of imperforated hymen, where its exit had been often prevented even to an advanced period of life.

The consistence of the blood is another quality which merits attention. Blood, in inflammatory cases, is not only longer in coagulating, but it is also much thinner than natural, which thinness has been proved by Hewson to depend on the greater attenuation of the coagulable lymph or fibrin. The whole mass of inflamed blood, before coagulation, is actually thinner than the serum of the same blood after coagulation has taken place, and the crassamentum or clot separated from it. Hence the disposition of arteries in an inflamed part to throw out coagulable lymph, may, more or less, depend on this change in the blood.

Whilst blood is flowing into a basin, our eye enables us to form some notion of its consistence, but this is best ascertained by the time it requires to coagulate. A firm texture of blood has been generally considered as a mark of strong action in the arteries, and as pointing out the propriety of abstracting it; and, on the other hand, when its texture is very loose, the utility of repeating venesection has been considered questionable.

Soon after coagulation, blood separates into two substances, the crassamentum and the serum.

The serum, or watery part, exudes through the pores of the coagulum, whilst the crassamentum contracts, leaving the sides of the vessel containing it, and preserving its form.

The proportions of the serum and crassamentum are various. In healthy blood they are nearly in equal quantities; whereas, in very stout and laborious people, and also during some inflammatory diseases, the crassamentum is in the larger proportion.

The serum is a fluid of a pale straw colour, has a slight saline taste, is somewhat viscid, rather heavier than water, and mixes readily with it. When exposed to a moderate heat, it coagulates into a light straw-coloured glutinous mass, and the same effect is rapidly produced by its sudden admixture with an equal quantity of boiling water.

The part of the serum which is thus coagulated, either by the application of heat, or an admixture of acids, possesses most of the chemical properties of the white of egg, and has been termed the *albumen*.

When the serum is coagulated by heat, there oozes from the mass a small quantity of viscid substance, which has been termed the *serosity*, and is a mucous fluid.

The serum has been found of a white colour, like cream, and to contain globules, which peculiar appearance has been attributed to an admixture of the chyle with the blood. This appearance,

however, has usually been met with in the serum of persons whose appetite has been impaired, and who have been subject to sickness and vomiting. Hewson supposes this change of colour to arise from absorbed fat, and says that all the persons in whom he found the serum white were plethoric, and were relieved by blood-letting. If a person be bled soon after dinner, the serum appears milky.

The serum is in greater quantity in what has been called *sizy* than it is in healthy blood, and the greater quantity which makes its appearance when you examine a vessel containing such blood, arises from the strong contraction of the fibrin forcing all the serum out of the clot. In such blood, the coagulum is remarkable in its shape; in place of having a smooth, plane surface, its edges are inverted.

When serum collects in a preternatural quantity, either in the cellular texture, or in any of the serous cavities, as those of the pleura, pericardium, or peritoneum, it produces the disease called *dropsy*.

The red globules were supposed by Hunter to be an indication of physical strength; the stronger an animal was, the more red globules did its blood contain. Wild animals have a greater proportion of red globules in their blood than those which have been domesticated, and there is a curious difference in the colour of certain muscles in the same animal, depending, no doubt, on the colour of the blood; this is particularly remarkable in the pectoral muscles of the black-cock, one set being much paler than the others.

The colour of the globules themselves varies in different vessels of the body, and there is a difference in the shade or intensity of the colour of the blood from the quantity of globules which it contains. There are also diversities of shade of red in the different systems of vessels. It is of a bright scarlet colour in the systemic arteries, and purple in the veins, and it is changed from the scarlet to the purple in passing from the ramifications of the aorta into the veins. Hence the variety in the shades of red, in different inflammations, arising from the differences in the proportion of the number of arteries and veins of the inflamed part.

When kept at rest, the blood in the arteries becomes of a dark colour, and in extravasations of arterial blood into cavities, if not exposed to the atmospheric air, it also assumes a dark colour.

Although blood is usually dark in the veins, it is not so under all circumstances. For when a large orifice has been made in a cutaneous vein, the blood which immediately follows the withdrawal of the lancet is black, and this is sometimes succeeded by blood of a florid scarlet colour.

The blood is also found of a florid colour in the veins of a part affected with common inflammation; and if the bandage used in phlebotomy has been kept some time on the arm, the blood which first flows from the orifice is very dark.

In diseases obstructing respiration, the blood is likewise of a very dark colour. This is the case during a fit of asthma. In diseases where the respiration is quick, as in phthisis, the blood is usually

florid, and indeed, in inflammatory diseases generally, the blood is more than naturally florid.

The red globules are not distributed, like other parts of the blood, throughout the whole frame, as appears from the want of the red colour in certain parts of the body. In some diseases their number is increased, at least in particular parts, and this may alone depend on the change in the size of the containing vessels. When much blood has been taken from the body, the red globules are not so soon renewed as its other parts, hence the paleness which often exists for a long time after copious depletions.

Mr. Brande found that the menstrual flux in its component parts resembles a very concentrated solution of colouring matter in a diluted serum.

Changes are also observed in the colour of the external or cutaneous bloodvessels in many diseases, which informs us that changes must have taken place in the sanguineous fluid. Observe the varieties of red in the colour of the lips and cheeks, in the eyes, and in the skin covering diseased parts. Observe the various shades of redness in the skin around different ulcers—changes which alone, in many instances, tell us the nature of the disease!

Richerand amputated the arm of a very old man, who for thirty years had an ulcer, which was connected with a varicose state of the veins of the limb; and the health of this individual was much impaired. During the operation it was observed, that “the blood as it flowed from the arteries was much less red than that which was lost by a young man whose leg was removed on the same day. In fact the venous blood appeared as if dissolved, of a violet colour, or somewhat like that produced by log-wood. It did not coagulate like that of the young patient, but separated into a serous fluid, containing a few clots very little coloured.”

The coagulable lymph, *gluten*, or *fibrin*, is that part of the blood which, as has already been mentioned, forms with the red globules the *crassamentum* or clot.

When the crassamentum is deprived of its red globules, which may be readily done by allowing a small stream of water to pass upon it, and by squeezing out the serum, what remains is the coagulable lymph. It is a white, tough, elastic mass, having a fibrous appearance, even in some instances apparently formed into laminæ.

This is the ingredient of the blood which renders it susceptible of coagulation, when removed from the living body, both in healthy and in certain diseased processes,—a change, which, whether we regard its rapidity, its degree, or its various modifications, forms an important diagnostic character in particular diseases. Mr. Dowler, in his ingenious paper, observed, that when inflammation takes place accompanied with effusion, the first substance that escapes is serum,—but if the inflammatory action increases, *fibrin* is effused, and the inflammation still increasing, pus is then formed.

While the blood is in a fluid state, the coagulable lymph cannot

be separated from the serum, but in disease this separation often takes place. Hence coagulable lymph is effused on the surfaces of inflamed membranes, or into cavities, such as those of the pleura and peritoneum; whilst, in other diseases, the serum is separated from the blood, and collected in cavities, forming the different dropsies.

The coagulable lymph is found in the greatest quantity in the blood of those afflicted with inflammatory affections of the fibrous textures, particularly in rheumatism.

There is a very considerable difference to be sometimes observed in the quantity of the coagulable lymph in blood taken in different cups from the same patient at the same bleeding. In some instances, this difference has been observed nearly one half. The coagulable lymph of healthy blood is more firm than that of sized blood.

Whilst the blood is coagulating, the process takes place so quickly in healthy blood, that the red globules are diffused throughout the whole of the crassamentum. But this is not the case in some diseases, wherein the coagulation occurring more slowly, the red globules, from their greater specific gravity separating from the coagulable lymph, are found disentangled at the bottom of the vessel. In some cases, the coagulation takes place when the red globules have scarcely reached below the surface of the crassamentum; and it is this portion, deprived of red globules, which forms what is called the "buffy coat."

The buffy coat, or "inflammatory crust," as it likewise is called, is of very different degrees of thickness, and the time required for its production varies from a few minutes to upwards of half an hour.

The appearance of a buffy coat is generally considered as one of the most striking characters of the inflammatory diathesis. A buffy coat, however, is not to be deemed, either as a certain test of inflammation, nor is it a safe index of the propriety of blood-letting. Whilst inflammatory diseases are at their acme, there is often no appearance of the buffy coat in blood taken from a vein; but in the latter stage of inflammatory disease, and when blood can no longer with propriety be abstracted, the buffy coat becomes remarkable. In local inflammation, before the constitution appears much influenced, the blood which is drawn from the larger vessels of the inflamed part, has been found to form a buffy coat, whilst blood drawn from distant vessels does not show the same disposition.

Dr. Tweedie once saw the buffy coat in blood taken from the temporal artery of a person labouring under pneumonia; and the great prevalence of the buffy coat in diabetes first led Dr. Watt, of Glasgow, to treat that disease by frequent bleedings.

In the advanced stages of pregnancy, it has often been observed that the blood has a peculiar disposition to form a buffy coat.

Dr. Hamilton has observed, that blood drawn from the arm of the most delicate and debilitated individual, subjected to a course

of mercury, exhibits the same buffy coat as blood drawn from a person labouring under pleurisy.

If a man in health be bled immediately after taking violent exercise, the blood shows a buffy coat.

DISCOURSE II.

OF THE ABSTRACTION OF BLOOD.

The utility of Blood-letting—Difference in the effects of abstracting Arterial and Venous Blood—Of a local abstraction of Blood—Effects of incisions made in inflamed parts—Spontaneous Bleeding from wounds—Local Bleeding, when to be employed.

Blood-letting has been employed in the treatment of diseases since an early period of the history of medicine. We are told that the Egyptian physicians were led to make use of it from a curious circumstance in the habits of the hippopotamus. They observed that prodigious inhabitant of the Nile, on particular occasions, come out of the river and trample his gigantic feet against a sharp point of a broken reed, by which he lacerated the skin in order that a bleeding might ensue, and which he arrested, after it had been sufficiently copious, by plugging up the wound with mud. Historians also tell us of some savage tribes who, when they are afflicted with feverish disorders, are in the habit of lacerating their skins with the sharp edges of broken shells, so as to produce a flow of blood.

The phenomena of spontaneous hemorrhages, the signal relief which these natural discharges afford, and the serious mischief arising from their suppression, must, however, have laid the foundation of a rational system for the employment of blood-letting.

The abstraction of blood is usually employed as a remedial means, either for the purpose of diminishing the action of the heart and arteries in inflammatory diseases, or for the removal of a surplus quantity of that fluid, from particular organs wherein there is what has been called "plethora," or a "congestion" of blood. A quantity of blood may also be abstracted in some diseases where its qualities have become changed; but whatever explanation be given of the effects of blood-letting, there is no doubt of its beneficial results in the treatment of disease, whether the sanguineous fluid be removed by art, or by a "spontaneous hemorrhage."

Blood may be abstracted either from the *venous* or from the *arterial* system; I am not, however, aware, that much attention has been paid to distinguish the difference of the effects which are produced by taking blood from an artery and from a vein, though it can readily be conceived that such difference may be considerable. The chief reason which is usually given for opening an artery in preference to a vein, is that the blood is obtained more

directly from the particular part affected—in larger quantity—and more promptly, than it would be from opening a vein. But as the temporal artery is almost the only vessel on which arteriotomy has been performed, it must be admitted that we know little of the effects produced by abstracting arterial blood, except when taken from that vessel. The result of my own experience is unfavourable to arteriotomy; having generally found that the inflammatory symptoms recur much more frequently after a certain quantity of blood has been removed from an artery, than if an equal quantity had been taken from a vein; and I know that this coincides with the experience of others. There are, however, cases where the difficulty or even the impossibility of procuring the requisite quantity of blood from a vein, renders arteriotomy an important and even an indispensable operation for the abstraction of blood.

A little reflection on these two modes of blood-letting, may to a certain degree explain how this difference of effect is produced.

When blood is abstracted from an artery, there is an immediate diminution in the supply of blood to the part nourished by that artery; but such is the vigour of the anastomosing branches, that the supply of blood which is thus cut off is very quickly restored. This is confirmed by observation. If one of the carotid arteries be tied, almost immediately the temporal and occipital branches of the carotid of the opposite side can be distinguished, through the integuments, dilating themselves, becoming tortuous, and struggling, as it were, to circulate an additional quantity of blood. I was first led to make this remark in the case of a child, on whose carotid artery I had placed a ligature for the cure of a large nævus on the cheek. Almost immediately after the operation, I observed the frontal, temporal, and occipital arteries of the opposite side of the head enlarging, increasing in their action, becoming tortuous, and actively employed in supplying the place of those vessels whose channels had been obstructed. Indeed, it was a knowledge of this function of the anastomosing branches of arteries, when a trunk is obliterated, that led Hunter to perform the “high operation,” for popliteal aneurism.

The same interesting phenomenon is exhibited in the eye. If an artery on the sclerotic conjunctiva, passing into a speck of the cornea, be cut through, vessels conveying red blood will be immediately perceived, stretching across the cornea from the opposite side, to supply the place of the vessel which had been divided.

Whenever the supply of blood to a part is diminished, the arterial system, by a wise provision of nature, makes an effort to throw blood by another channel to the part which has been deprived of its natural quantity of blood, and thus the action of the heart and arteries must be more or less increased; but the abstraction of blood from a vein is followed by no such increased action of the arterial system—there is no local diminution in the supply of arterial blood—no effort made by the arteries to supply the place of the venous blood which has been removed. On the contrary, a diminution in the supply of blood to the heart by the

veins, will, as I have just observed, have the effect of diminishing the vigour of the heart's action, and, consequently, that also of all the arterial system.

The effects of opening the temporal artery in puriform ophthalmia well illustrate the differences between arterial and venous depletion in the treatment of inflammation. An eye injected with red vessels, will be suddenly relieved by opening the temporal artery, and the conjunctiva will become quite pale, inducing us to suppose that the inflammation is subdued. I have generally found, however, that sooner or later, even in a few hours, the inflammation returns; and others have made the same remark; whereas, if a vein in the arm be opened, and blood taken to the full extent, the good effects of such depletion are permanent.

There is, therefore, a distinct and important difference between the changes which take place in the action of the vessels of a part, when blood has been taken from an artery or from a vein, and it explains the difference in the effects which I have always found when those two modes of abstracting blood have been employed.

It is also extremely probable, that there will be a variation produced according to the kind of blood which is taken away—that the removal of a pint of arterial blood will produce a different effect on the system, from the removal of the same quantity of venous blood. What these differences are I cannot pretend to specify; but one proof that the abstraction of venous blood is the more useful in the cure of disease is, that in those natural or “spontaneous hemorrhages” which are so salutary, such as those from the nose and hemorrhoidal vessels, the blood which is discharged appears to be chiefly venous. Where leeches and cupping are had recourse to, they no doubt remove both arterial and venous blood at the same time; so that the circumstances under which these operations are performed do not furnish us with any opportunity of discriminating between the comparative effects of the abstraction of venous and arterial blood.

Another point which ought to be borne in mind, when weighing the advantages of abstracting arterial and venous blood, is, that the temporal arteries, as they pass over the zygoma of the temporal bone, can only be once opened at the proper point for the operation. For arteriotomy is not like venesection—the wound made in the vein, when united, leaves the canal of the vessel entire; whereas, when an artery is opened, it is requisite, after taking the necessary quantity of blood, to divide the vessel completely in order to allow it to retract, that the bleeding may be stopped; for it is improper to attempt this by compression alone. The canal of the artery becomes, therefore, by the operation of arteriotomy, completely obliterated, and as the circulation is afterwards carried on by a greater or less number of enlarged anastomosing branches, neither the original trunk nor a branch of sufficient calibre will be found in the temporal region, on which the operation of arteriotomy can be repeated, should such a measure be ever deemed necessary.

There is no question which the practitioner has more frequently to ask himself, when treating particular cases of inflammatory disease, than whether *general* or *local* bleeding ought to be employed. As far as I know, this most important question has not been explicitly answered, nor have such distinct rules been laid down by any author as will serve to guide the young practitioner; though the practice of different judicious men on this, as in most other practical points, will be found nearly to correspond.

Now it appears to me, that there are certain indications which will, on all occasions, enable us to select, in the most decided manner, the one or the other of these modes of abstracting blood; but, before endeavouring to point out what those indications are, it will be necessary to explain what is usually understood by *general* and *local* bleeding.

There are few parts of the body from which blood can be abstracted locally, strictly speaking; for blood taken by leeches, or by cupping from the integuments covering a diseased organ, must often come from vessels which are not ramifications of, and have no direct communication with, the vessels of the diseased organ—the superficial and deep-seated vessels, both arteries and veins, being, in most parts of the body, branches from other trunks. Thus, blood taken from any of the branches of the external carotid, as the temporal arteries, for the treatment of diseases of the head, cannot be considered as a local bleeding, from the distant and circuitous connection which those vessels have with the internal carotids. Neither, for like reasons, can blood, taken from the parietes of the chest or abdomen, be considered as strictly a local bleeding in affections of the thoracic or abdominal viscera. The opening of a vein in the arm abstracts blood more directly from the jugular veins, as well as from the superior and inferior cavæ, than leeching or cupping the integuments of the temples, forehead, or those of the thorax or abdomen. What, therefore, has usually been considered as general bleeding, is a more local mode of taking away blood for the treatment of the various affections of the brain and those of the thoracic and abdominal viscera, than that which is usually resorted to, and commonly considered as a local mode of blood-letting.

Local, or “topical” bleeding, strictly so called, can, indeed, be only employed in a few organs, and in a few parts of the body. In the treatment of diseases within the cranium, topical bleeding can be accomplished by taking blood from the frontal vessels, or from the ethmoidal vessels, both of which come from the encephalon, and are branches of the internal carotid artery. It may be also taken from the vessels which pass through the mastoid foramen of the temporal bone, the veins communicating directly with the lateral sinus, and the artery being a branch of the occipital which goes to the dura mater.

As the frontal artery is a ramification of the ophthalmic, and as the ophthalmic artery comes from the internal carotid, and passes through the orbit to reach the forehead, blood taken from that

vessel must be a more local bleeding, strictly speaking, in diseases of the head and globe of the eye, than blood taken from the temporal artery, the temporal artery being a branch of the external carotid.

On this account, in diseases of the head, as well as in diseases of the eye, more particularly those affecting the internal parts of the globe, leeches applied on the frontal vessels give much more relief than is obtained by abstracting an equal quantity of blood from the temporal vessels, by leeches applied on the temples.

Bleeding from the nose, or epistaxis, may be also considered strictly as a local bleeding in congestions of blood within the head. In such hemorrhages the blood comes from the ethmoidal vessels, which are branches of the internal carotids, passing through the cribriform plate of the ethmoid bone, and ramifying on the Schneiderian membrane. I have frequently known affections of the head, which, after resisting general bleeding, and the application of leeches on the head, were instantly relieved by the spontaneous escape of even a few drops of blood from the nose. The effect of losing a small quantity of blood locally, is, indeed, often surprising. Of this I might give some remarkable illustrations. An instance of the kind to which I allude occurred in a lady, who, after employing local and general bleeding for a disorder in her head, applied to an itinerant doctor, celebrated for curing headaches. He introduced an instrument into the nose, by which he wounded the Schneiderian membrane, and produced a flow of blood; and the evacuation which followed completely cured the headache. It was in a case of this kind that Galen is said to have acquired much renown, by successfully prognosticating that a patient would have a flow of blood from the nose, by which the affection of the head would be relieved.

I have often thought that some mode might be contrived, by which an artificial flow of blood from the ethmoidal vessels could be produced—as there are, no doubt, many affections of the head which would be relieved by such an operation—or that leeches might be safely applied to the interior of the nostril.

A lady had long suffered from headaches; I advised her to apply leeches within the nostril. One was accordingly applied on each side of the septum, and her headaches were completely relieved. Another lady, after severe mental affliction, complained of uneasiness in the head, for which blood-letting was employed. She had frequent returns of the headache, and was always relieved by depletion, leeches being sometimes applied behind the ear, on the temples, or on the feet. On one occasion, when a sense of fulness continued in the frontal region, after trying the usual modes, I advised her to apply a couple of leeches to the nasal septum, and the bleeding had the happy effect of completely relieving her head. Subsequent to that period, she had occasional returns of headache, and she found that a small bleeding from the nose never failed to give a more decided relief than she had ever obtained from any other mode of blood-letting.

The practice of applying leeches within the nose is well exemplified in a patient who was under the care of Mr. Miller of Enfields. "A gentleman, fifty-six years of age, had for several weeks complained of a sense of weight and pain, extending along the forehead, particularly in the region of the frontal sinuses; purgatives, and leeches to both temples, were resorted to with little benefit, which led me to adopt the practice lately recommended by Mr. Wardrop, of withdrawing blood from the vessels of the Schneiderian membrane. I applied one leech within each nostril, which bled freely, and I had the satisfaction to find the patient, next day, completely cured."

I have now had frequent opportunities of testing the comparative advantages of the different modes of abstracting blood in affections of the head, and I am fully persuaded that the application of a small number of leeches, and these, on the lining membrane of the septum of the nose, is, in many cases, the most preferable mode of blood-letting, more particularly in those where the uneasiness in the head is limited to the frontal region; and also in cases of chronic inflammation of the eye, and inflammatory affections of the lachrymal sac. In all such cases I have repeatedly recommended patients to apply the leeches alternately on the nasal septum, and on the part adjoining the inflamed organ, and to compare the effects of each; the result of this has almost invariably been, that they have given a decided preference to the abstraction of blood from the nose.

Leeches applied behind the ears are well known to relieve affections of the head; a practical fact, satisfactorily accounted for by that vascular communication between the integuments behind the ear and the encephalon, to which I have already alluded.

Immediately behind the mastoid process, and near where the temporal and parietal bones unite, is situated the mastoid foramen, through which passes sometimes an artery, and always a large vein. The artery is a branch of the occipital, and goes to the dura mater, and the vein comes directly from the lateral sinus. It is, therefore, easy to explain how substantial relief should be obtained, in those affections of the encephalon where depletion is necessary, by the application of leeches behind the ears. I have employed this mode of bleeding very extensively, and I am satisfied that blood abstracted from these vessels is a most important mode of depletion, as well as blood-letting from the ethmoidal arteries, which I have also recommended in those affections of the head where such a system of treatment is proper.

A gentleman had complained of an uneasy feeling throughout the posterior part of the head, for which he had used a variety of opening and other medicines, during upwards of three weeks. I advised him to apply two leeches behind one ear. They bled profusely, and when I saw him the following day, he expressed his surprise at the complete relief so few leeches had afforded, and he remained permanently well.

Scarifying the palpebral conjunctiva, in the treatment of some

forms of ophthalmia, is also a means of abstracting blood locally, the good effects of which, after other modes of depletion have been unsuccessfully employed, are very striking; leeches have also been used for a similar purpose.

Leeches applied to inflamed gums give great relief, and so also do leeches applied to the mucous membrane of the vagina in cases of inflammation of the uterine organs.

Bleeding in the jugular veins is likewise a most useful mode of abstracting blood in affections of the head, particularly in children, where leeches applied to the neck are often dangerous, from the difficulty of controlling the bleeding, and where the veins of the arm cannot be easily opened.

I formerly had occasion to remark, that the most powerful means we possess for the treatment of diseases, produced their good effects by imitating the processes which nature herself employs. In no class of cases is the *vis medicatrix naturæ* more admirably exemplified, nor the propriety of local bleeding more distinctly pointed out, than in the benefit derivable from "spontaneous hemorrhages." Indeed, as I have already said, it is extremely probable that artificial blood-letting was first suggested, for the cure of diseases, by the beneficial effects observed to follow from spontaneous hemorrhages.

The effects of local bleeding from the hemorrhoidal vessels is exemplified in the spontaneous hemorrhages from *hemorrhoidal tumours*—many persons being in the habit of losing, and that sometimes too at regular periods, a considerable quantity of blood from those tumours: a circumstance which seldom fails to relieve some disturbance of the general health arising from congestion in the portal system. Hence the benefit of promoting such a discharge in those who may have been habituated to it, and the dangerous consequences which its suppression has been so often known to produce; it also points out the propriety of local bleeding, either when the hemorrhage is not sufficient to remove the symptoms of congestion, or when such symptoms come on, and are not followed by the spontaneous evacuation of blood.

Blood is sometimes discharged by the bursting of a varicose vein, which hemorrhage is always efficacious in relieving internal diseases; and Petit and others have recorded cases where it has taken place to an enormous extent.

Even in *malignant diseases*—such as cancer and fungus hæmatodes—the occasional hemorrhage to which such tumours are liable, though it may be sometimes too profuse, yet often has a salutary effect, and relieves the fulness of the vessels and the pain which frequently accompany these diseases. Hence the decided benefit which I have often found from the occasional application of leeches adjacent to schirrous tumours when there was much pain or tension.

The same extraordinary relief may be also observed from those hemorrhages which so frequently occur in *sloughing ulcers*, the discharge of blood subduing that violent inflammation which led

to the sloughing of the soft parts. It was observing the effect of hemorrhages in ulcers of this description which first led me to adopt what I have since found a most useful practice in sloughing sores,—that of abstracting blood, not only in order to arrest the local bleeding, but to subdue that inflammatory condition of the system which leads to the sloughing process.

The beneficial effects of local bleeding may also be observed when it becomes necessary to make an incision into an inflamed part. It is by no means uncommon to find that extraordinary relief is produced by the escape of blood from an incision made through the inflamed integuments covering an abscess, and that too under circumstances where the accompanying symptoms would not have indicated the propriety of abstracting blood in any other way.

A remarkable illustration of the good effects of a local bleeding of this description, I witnessed in a medical student who was under the care of Mr. Lawrence and Mr. Earle, and who had a most extensive and severe inflammation of the hand and arm, arising from a poisoned wound of the finger, received when opening a putrid body. He had been bled copiously, until the pulse had completely sunk; but still there was so much swelling, redness and pain in the arm, that Mr. Lawrence was led to adopt a treatment first proposed, and strenuously advocated, by Mr. Hutchinson, in erysipelas. The practice consists in making deep and extensive incisions through the inflamed integuments. This was done in the above case, and several pounds of blood were discharged from the wounds, which, in place of weakening the patient, as might have been expected, was followed by rapid abatement of all the severe symptoms, and certainly seemed to be the means of saving life.

The common practice of laying open sinuses while the adjacent parts are in a state of inflammation, owes its good effects entirely to the profuse bleeding which generally follows the incisions.

Similar relief may be observed from the flow of blood which takes place when free incisions are made through the inflamed integuments of a finger affected with whitlow, and by dividing the gums during dentition.

Independent of this relief from the bleeding of incisions, why should we not anticipate as much from the discharge of the serum, or sero-coagulable effusion, which takes place, into the cellular tissue of an inflamed part, as from the discharge of the effusion when it has become purulent? It seems to me a point well worthy of consideration, to determine whether or not in phlegmonous cases it would not be much more advantageous, where there is no rational expectation of preventing suppuration, to make a free incision through the inflamed skin at an early period, and before any pus has been formed. The evacuation of the sero-coagulable fluid effused in the cellular tissue, and deposited there previous to its conversion into a purulent fluid, along with the profuse discharge of blood from an incision made in the integument, would

not only produce great relief from pain, but would limit and check the future progress of the inflammation.

A girl, about ten years of age, had a large inflammatory swelling on the ulnar aspect of the arm, which was extremely hard and painful to the touch, and the integuments were of a bright scarlet colour. Though I could not distinguish any fluctuation, I was persuaded that by freely dividing the skin she must be saved a protracted suffering. I therefore made a free incision through the middle of the tumour. It bled most profusely, and I could not detect the escape of any purulent fluid with the blood. A poultice was applied, the inflammation and pain were almost immediately subdued, and the wound granulated and healed quickly.

In many cases I have witnessed beneficial effects from the local bleeding which often takes place after operations and wounds, though to avert or arrest which care is usually, though injudiciously, taken. I have often had occasion to point out the good effects of the loss of even very considerable quantities of blood during operations in preventing subsequent febrile symptoms and local inflammations. But it may be here noticed, that whatever quantity has been lost during an operation—however carefully the patient has been prepared before the operation—however attentive the surgeon may have been in securing with a ligature every bleeding vessel—yet, more or less, inflammatory action, accompanied by fever, may supervene, and a hemorrhage from the wound take place. Under such circumstances, little need be feared from the bleeding; and, before placing a ligature on any bleeding vessel, it will be wise either to have the wound exposed, and to allow a sufficient oozing in order to check the inflammation and the accompanying febrile symptoms, or even to take some blood from a vein in the arm for the same purpose. On one occasion I removed the greater portion of the lower jaw of a young woman, and she was so deluged in blood that bystanders conceived her recovery to be almost impossible. She remained many hours in a state of syncope; and I avoided giving her any stimulants, in the hope that the fearful wound would be more likely to heal by adhesion. But notwithstanding all precautions, in a few days she became feverish, and blood issued from a corner of the wound. I used no means to arrest it, and it stopped after a few ounces were discharged, completely alleviating all the inflammatory symptoms.

Whenever, therefore, there is any chance of bleeding from a wound, it is of great importance not to be too hasty in applying plasters and bandages—so that if any hemorrhage subsequently take place, all the pain and alarm of undressing the wound are avoided, and the bleeding vessel can be easily secured.

The observations which have been made are sufficient to point out the advantages to be derived from local bleeding, strictly so called. In the treatment of those diseases wherein blood-letting is to be employed, it is of great consequence to have some rules to enable us, on all occasions, to decide whether to make choice of a local or of general blood-letting. Now, it is an excellent rule, and

one which I will venture to say will seldom lead to error, always to employ general in preference to local blood-letting, in such cases of local disease or injury as are accompanied with, or have created, a disturbance of the general system. Whereas local bleeding ought to be employed in preference to general bleeding, when only local symptoms exist, or when only local symptoms remain, after the general symptoms have been subdued by previous general blood-letting. A person, for instance, receives a blow upon the head, which creates symptomatic fever: he is bled more or less profusely at the arm, until the febrile symptoms are subdued. A good deal of inflammation of the integuments, however, still continues; but, to remove which, leeches ought to be applied. The same observation may be made in the treatment of almost every disease, as well as injury, for which bleeding is necessary; and perhaps the most frequent error which is committed in the treatment of those diseases which require blood-letting, is, that local bleeding is employed where general bleeding, or venesection, ought to have been substituted. It is seldom that the reverse practice has been adopted, or that a patient has been copiously bled at the arm, in place of having lost blood by leeches or by cupping. There seems always to be a disposition, in patients as well as in medical men, to economise blood—venesection being commonly considered a more serious operation than cupping or the application of leeches; and hence the latter is generally, though often injudiciously, preferred. In many instances of persons who have repeatedly lost blood during an attack of illness, an error has been committed by commencing with local in place of general bleeding, the consequence of which is, that the disease is not so soon checked as if a copious general bleeding had been employed in the first instance. Moreover, by the necessity of resorting to a frequent repetition of local or general bleeding, the whole quantity abstracted for the cure of a disease greatly exceeds what would have been required, had the treatment commenced with one adequate venesection.

DISCOURSE III.

General Blood-letting—Indications for employing it—Of the Pulse—An incompressible Pulse—Other changes in the Pulse—Natural varieties of the Pulse—Changes in the Heart's Action—The local pain—Importance of the first Bleeding—Extent to which it ought to be carried—Effects of Syncope—Quantity of Blood to be abstracted.

Having endeavoured to point out the different modes by which blood may be abstracted *locally*, and having also illustrated the salutary effects of local depletion by references to the phenomena of spontaneous hemorrhages, various local inflammations, and congestions of blood, when they are not accompanied by any constitutional disturbance, we now come to the consideration of the subject

of *general* blood-letting, the indications which point out the propriety of employing it, and the quantity of blood which should be removed in the treatment of various diseases.

It was remarked in the last discourse, that whenever any local disease or injury has excited a febrile disturbance throughout the system, general blood-letting or venesection ought to be decidedly preferred to local bleeding, and the indications to which our attention ought to be more especially directed, in deciding on the propriety of general blood-letting, are the state of the heart and arteries, and the character of the local pain.

The leading symptom, by which the constitutional disturbance demanding venesection is indicated, will be found in the *quality of the pulse*; and, in deciding on the propriety of blood-letting, it is not always necessary that we should find the pulse frequent, or tense, or full, or hard, but to be on all occasions satisfied of the propriety of abstracting blood from a vein, whenever, in any complaint of an inflammatory type, or under circumstances such as those which often arise after operations, or from accidents, there is the least deviation in the pulse from the natural standard. No sooner have a few ounces of blood been extracted in such cases, than the pulse will be observed to "rise," as it is called, and to acquire volume and power; thus indicating the propriety of the measure.

There is nothing more uncertain than trusting to the qualities of the pulse, which are usually described as those which alone indicate the propriety of blood-letting; and we ought ever to be aware of the important fact, that, during an attack of inflammation, the pulse varies according to the organ which is affected, and is even different in inflammatory affections of different textures of the same organ—except in one particular character, which shall be presently pointed out.

The mere increase in the *frequency* of the pulse is a circumstance of little importance in estimating the propriety of blood-letting, compared with certain changes in its qualities; and, therefore, the usual practice of counting merely the number of pulsations, is apt to lead to an erroneous conclusion. In two patients, in each of whom the pulse beats 120 in a minute, the one may require to be plentifully bled, whilst the other ought to have cordials.

Little difficulty occurs in distinguishing those states of the system which require general bleeding, when diseases have made considerable progress, and when their symptoms and character have become distinctly developed. It is before they arrive at this period, and when medical treatment is most available, that their true nature is apt to escape detection; and there are many states of disease where substantial advantage is to be derived from venesection, but where, at the same time, it could not, perhaps, be affirmed, from the presence of any particular symptom, that inflammation did actually exist. "Inflammation, in some textures of the body," observes an intelligent writer, "is so obscure in the begin-

ning, so insidious in its progress, and so rapid in its termination, that, in all cases in which the surgeon hesitates respecting the necessity of bleeding, it is a wise plan not to deprive the patient of the benefit of the doubt, but immediately to proceed to venesection."

It is certain that there is a period of disease when bleeding is not only unnecessary but improper; and there is likewise a moment when venesection may be had recourse to with more advantage than at any other. To detect this precise period must, therefore, be of great practical importance. In those who have been wounded, or who have met with a severe accident, or on whom an operation has been performed, in all such cases the action of the heart and arteries, which is at first diminished by the general shock received by the whole system, should be allowed to recover, or reaction should take place, before resorting to blood-letting; and this rule applies generally to all inflammatory diseases. The chill, for instance, which a person receives from the sudden exposure to a change of temperature, and which lays the foundation of an inflammation in some of the internal viscera, produces a collapse of the whole frame, which is not followed, until after a certain period, by those inflammatory symptoms which require blood-letting.

The peculiar feeling in the pulse to which I have alluded, and which points out, almost universally, the propriety of venesection, is sufficiently well indicated, by the term "incompressibility." An incompressible state of the pulse may, I venture to say, be considered as pathognomic of inflammation, in whatever organ or texture that inflammation exist. I have already remarked, that each of the different textures of an organ, when inflamed, is attended with some peculiarity of the pulse. Inflammation of the dura mater—of the cerebral pulp—of the pleura—of the mucous membrane of the bronchi—of the pericardium—of the muscular parietes of the heart—of the serous membrane which lines its cavities—of the peritoneal and mucous coats of the intestinal canal—are each accompanied by peculiarities of pulse; but in all we can detect an incompressibility. For whether the pulse be full or small, hard or soft, frequent or slow, if with the point of one finger the artery be pressed at the wrist, we shall perceive with another finger applied to the artery beyond, and at the distal side of the first finger, that unless a very considerable degree of pressure be employed, the pulsation of the radial artery will not be entirely destroyed, but the sensation, as if of a fine thread, or hair, will remain.

This incompressible state of the pulse, indicative of the propriety of blood-letting, is illustrated in some of the subsequent cases; and we may often observe instances of persons being relieved from internal disease by profuse and spontaneous hemorrhage, and in whom no deviation in the pulse, from its natural state, could be detected, except as regards this feeling of incompressibility.

Attention to this quality of pulse, I can with confidence assert, has scarcely ever failed to guide me, in the use of phlebotomy, even

in otherwise doubtful circumstances; and a conviction of the accuracy of the observation has led me to adopt bleeding in many cases, where I could not otherwise have ventured to employ it, and where there were not present any of the ordinary indications of inflammatory action. It was this state of pulse which first pointed out to me the propriety of employing venesection in erysipelas—in cases of sloughing ulcers—in exanthematous fevers—in cases of poisoned weeds—in specific diseases—and in certain stages of several other affections, afterwards to be noticed, and where an opposite practice is frequently—nay, usually—followed.

In most of the diseases which have now been alluded to, by a superficial examination of the pulse, an impression is generally received that there is a feeble state of the system, and hence, in place of a depletive or antiphlogistic mode of treatment, wine, bark, and stimulating remedies, have been employed. But we can be readily satisfied of the results of these two very opposite modes of treatment in some of those diseases, by observing the practice in the different hospitals of this city, where patients, afflicted with similar ailments, are bled profusely by one practitioner, and by another get as much bark and wine as their stomachs can receive.

Though I have never observed an incompressible state of the pulse, without having found venesection to be an expedient measure; yet there are other qualities perceptible in the pulse which also indicate the propriety of blood-letting. A hard pulse—a firm pulse—a full pulse—a wiry pulse—an oppressed pulse, all, in their turn, either taken singly, or combined with other symptoms, more particularly local pain, hot skin, and white tongue, point out the propriety of employing venesection.

No power of discrimination requires more attention and experience than such a knowledge of the pulse as enables us to distinguish its various peculiarities, both in health and in disease. This knowledge entirely depends on the exercise and improvement of the sense of touch. Like that of sight and hearing, the sense of touch differs exceedingly in acuteness in different persons, but in all it is capable of improvement. We must not expect at first to be able to distinguish these nicer differences in pulses which are palpable to an experienced finger, any more than we could expect at once to be able to perceive the slighter varieties in the shades of colour, so easily discernible by a skilful painter. All the senses require tuition. We ought to practise, by feeling a number of pulses, both of people in health, and of those with disease, one after another; and by first observing strong contrasts, we ultimately become familiar with lesser differences in the pulse, all of which essentially assist in pointing out particular states of the vascular system.

Thus we shall learn that there is a great variety in the pulse of different persons in health—in the number of beats at the different periods of life, and at different hours of the day—that there is frequently a difference in the pulse of the two arms of the same person—and, moreover, that the pulsations of the heart and

arteries do not always correspond. The pulse, too, is usually found more frequent in women than in men; and in the morning it is slower than in the latter part of the day, its quickness being increased by the various bodily and mental stimuli. To all these differences attention ought to be directed, as points of great practical utility; and some men of observation acquire more perfectly than others the tact of acutely discriminating the varieties in the pulse, and of perceiving its varied changes, whether arising from disease, or from accidental temporary causes.

Magendie has given the following scale of the pulse, showing the difference in frequency between that of the infant and the aged—the quickness of the pulse gradually diminishing with our years.

At birth, the pulse is	130 to 140 in a minute.
One year,	120 — 130
Two years,	102 — 110
Three years,	90 — 100
Seven years,	85 — 90
Fourteen years, . . .	80 — 85
Adult age,	75 — 80
First old age,	65 — 75
Confirmed old age, .	60 — 65

Besides the presence of fever, local pain, and the state of the pulse, changes of the heart's action are important indications, in the use of bleeding, on which sufficient attention has not been generally bestowed.

The pulsations of the arteries, and those of the *heart*, will be often found not to correspond. I do not mean as to their number, but in their strength and other sensible qualities; and I may venture to assert, that generally in those cases where the pulse at the wrist is contracted and difficult to compress, the heart will be found to beat with increased vigour. Hence this vigorous action of the heart may be regarded as a useful guide in the employment of blood-letting, and when taken into account along with the incompressible state of the pulse, will afford additional confidence in deciding on a depletive system of treatment.

A knowledge of the heart's action can only be acquired, like that of the pulse, by an accurate examination of it in a number of healthy individuals, as well as those under the influence of disease; and we ought to make ourselves as familiar with all the peculiarities of the actions of the heart as with those of the pulse.

A young lady who had all the symptoms of cerebral inflammation, for which leeches had been applied to the head, still complained of headache, with great depression, hot skin, and other symptoms of fever. Her pulse was small and incompressible, though not frequent, and on examining the heart, to which I called the attention of the practitioner in attendance, he was surprised to find its action very tumultuous. Venesection was now employed, and whilst the blood flowed the pulse became more voluminous, and the heart's impulse was subdued. Syncope ensued after a few ounces of blood were

abstracted, and the patient recovered without any further depletion.

A lady, in a state of pregnancy, had been greatly debilitated, having vomited every kind of food and drink which she had taken for upwards of twenty days. I saw her at this period. She was emaciated, and so feeble that her recovery was, by those around her, considered hopeless. She had a distinct tenderness on pressure in the epigastrium, and her pulse, which gave at first the impression of great languor, on more minute examination was very contracted, feeling like a thread, and incompressible, while the heart's action was vigorous.

This state of the vascular system assured me that I should afford her relief by blood-letting, which was immediately resorted to, though with hesitation by other medical attendants. No sooner had a few ounces of blood flowed from the vein than the pulse began to rise and acquire volume, and upwards of twenty ounces were abstracted before its vigour was subdued. The effect of this treatment was, that with very small doses of the sulphate of magnesia, repeated at short intervals, the stomach no longer rejected food, the alimentary canal was unloaded, the patient's recovery was progressive, and she was delivered of a healthy child at the proper period.

In almost every case where venesection is necessary, there is present along with the disturbed action of the arterial system, some local pain, more or less severe. The degree of pain, whatever organ the inflammation may affect, is not however to be considered as a measure of the violence of the accompanying inflammation. On the contrary, persons often suffer severe agony when there is but slight inflammatory action; whereas, when the inflammation has arrived at its acme, the local pain often diminishes in intensity and becomes dull and obtuse.

Whilst it is expedient to have recourse to blood-letting when there is a fixed and unceasing pain, increased by pressure, and accompanied by an alteration in the pulse and in the impulse of the heart, it is of great importance to be aware, that though the local pain is usually alleviated, and the action of the vascular system subdued, by venesection, yet bleeding, whether local or general, must not be continued, or repeated, as long as the local pain exists. On the contrary, when all febrile excitement has been subdued by blood-letting, the pain which continues may be alleviated by a blister or by opiates, either taken singly, or combined with calomel or antimony.

A gentleman complained of an acute and unceasing pain in the head, accompanied with febrile symptoms, for which he had been copiously bled both by cupping and venesection, and the alimentary canal had also been freely evacuated. The pain in the head continuing along with much general disquietude, I was consulted. The pulse was now frequent, very easily compressed, and feeble; the skin moist and the tongue of a milky white; he complained of considerable pain throughout the head, great restlessness and no

disposition to sleep. I recommended him to take two grains of crude opium, and one grain every hour afterwards until he should be relieved. The first dose of the opium was soon followed by tranquillity, and, after a second dose, he fell asleep, awaking with the pain in the head and general restlessness quite subdued.

A lady was attacked with severe pains affecting the muscular parietes of the chest and abdomen, which had been occasioned by a sudden chill; leeches, cupping, a variety of sudorific and purgative medicines, calomel and opium, colchicum and blisters, had all been used with only temporary relief, and, after the lapse of some weeks from the commencement of her illness, I visited her. The pains in the muscles covering the posterior part of the chest were now excruciating on the least attempt at motion, the pulse was soft and frequent, the urine and alvine evacuations were natural—the skin was moist, the tongue considerably discoloured, the appetite was not much impaired. It appeared to me that no further benefit would be derived from more depletion, and two grains of crude opium with an equal quantity of the antimonial powder were given at bed time. This had the effect of producing a calm, refreshing sleep, and the medicine was continued for some nights, causing a gradual alleviation of the pain and a rapid restoration of the general system.

There is no maxim of the practical correctness and importance of which I am more fully convinced than that the loss of a certain quantity of blood at the *first bleeding*, is of greater utility in stopping the progress of inflammatory diseases when general bleeding is required, than the abstraction even of a much larger quantity of blood by several successive bleedings. I wish to be understood that, in place of taking a quantity of blood, say sixty ounces, at three successive bleedings of twenty ounces each,—performed within thirty-six hours,—an infinitely greater degree of relief will be derived from taking two-thirds of that quantity at one bleeding. Not only will the progress of the disease be thus more quickly and decidedly checked, but the patient will be saved the loss of twenty ounces of blood.

The good effect of abstracting so large a quantity of blood at the first bleeding might be expected, without adopting any preconceived opinion or theory on the subject; for, as we have been taught by experience, that the great benefit of abstracting blood is derived from the sudden change which such depletion produces on the action of the heart and arteries, it is evident that such change must be effected in a more decided manner by abstracting a quantity of blood at one bleeding suddenly, than by taking away an equal quantity slowly, and at more or less distant intervals.

In almost all cases where bleeding is employed, there is a disposition on the part both of the patient and by-standers, and often too of the medical attendant, to be as sparing as possible in the evacuation of blood; whereas in the generality of cases an effort, I am convinced, should be made rather to take away as much as the

patient can bear, and not to desist until there be rational grounds to expect that a second bleeding will not be necessary.

A useful general guide for judging of the quantity of blood to be abstracted, will be found in the change produced in the action of the heart and arteries. The effect, however, of the abstraction of blood in relieving local pain, whilst the blood is flowing from a vein, is not to be entirely disregarded, though the only unerring criterion, as far as I have been ever able to discriminate, is that of the change produced in the *pulse*. That change in the pulse which marks the propriety of not carrying bleeding any further, is the absence of the "incompressibility" which has been already mentioned. This state of the pulse, however, does not usually subside until fainting or syncope supervene, in which case the pulse ought to be carefully watched after the fainting goes off, when it will be sometimes found that the sensation of incompressibility soon returns. If this takes place, more blood ought to be immediately drawn, and its abstraction persisted in, until the peculiar feeling of incompressibility is entirely subdued.

A young athletic officer complained of an intense pain in the head accompanied with such depression that he could with difficulty remain in the erect posture. His pulse was not much altered, but there was a degree of incompressibility in it which pointed out to me the propriety of venesection. Upwards of forty ounces of blood were abstracted before syncope came on. When I visited him two hours afterwards, I found that he had recovered from the state of fainting, but a degree of incompressibility of the pulse still existed. The bandage on the arm was reapplied, and upwards of twenty ounces more blood were abstracted before the fainting state returned. These bleedings were followed by a complete relief of the pain in the head, and after the free use of purgatives, calomel, and antimony, he permanently recovered.

When a large quantity of blood is not taken away at the first bleeding, or at a second depletion quickly succeeding, I have generally found that on all future occasions it is seldom practicable to abstract any considerable quantity, howsoever necessary it may appear; and thus it is, that when copious bleedings are not employed at the commencement of the treatment of inflammatory diseases, and if the patient afterwards recover, it has generally been from the employment of a great number of small bleedings.

A young lady, at the commencement of an attack of peritonitis, had been three times bled in small quantities, and local as well as general bleedings were afterwards repeated whenever pain and febrile symptoms recurred; these were carried, on each occasion, as far as the pulse could bear, and always with relief. Yet she was bled, locally and generally, no less than seventeen times, before the progress of the disease was altogether arrested. I have long been of opinion, that it is only those cases where bleeding has been too sparingly used at first, wherein it is ever necessary to carry depletion to a great extent: and moreover it is only such cases wherein the pernicious effects of bleeding are exemplified.

It may also be mentioned that the decided and remarkable advantages to be obtained from the first bleeding, are strikingly illustrated by the practice of many intelligent veterinarians; and I had, at an early period of my life, frequent opportunities of observing the treatment of the inflammatory diseases of domestic animals, from which I obtained much confidence in applying similar rules of practice in the treatment of the diseases of the human body.

It has been laid down as a common rule for the treatment of inflammatory diseases, that blood should be abstracted until *syncope* is produced; by which we might be led to suppose that the fainting was either a certain token of the quantity of blood that should be taken away, or that it was the act of syncope itself, and not the loss of blood, which was to cure the disease.

Hence we often hear of persons being bled until they fainted, as a proof of the vigour of the practice which had been employed, without considering whether the fainting had been produced by excessive depletion, or from the particular position of the patient whilst the operation was performed. Suppose two individuals similarly affected, and in every respect in the same state, one of whom is bled in the erect posture until he faints, whereas the other faints from the loss of blood whilst he is recumbent. In the first patient the syncope will probably be produced by losing one half of the quantity necessary to be removed before the second patient falls into a state of syncope.

In having recourse to venesection it is, therefore, important to consider whether the purpose of the operation be to abstract a certain quantity of blood from the system, or merely to produce syncope. When it is desirable to make a person faint with the loss of as little blood as possible, as, for instance, for facilitating the reduction of a strangulated hernia, or dislocated bone—then venesection ought to be performed in the erect posture. But for the abstraction of a certain quantity of the sanguineous fluid, in the treatment of diseases requiring depletion, fainting ought not to be considered as an index of the quantity of blood proper to be withdrawn; but the usual means should be taken to avert its occurrence, except when the patient is in a recumbent posture at the time the venesection is performed. Indeed when employing blood-letting for the cure of inflammatory diseases, we ought to be particularly cautioned against placing too much confidence in the idea that, if we have bled a patient *ad deliquium*, we have carried the bleeding to its full and necessary extent. On the contrary, when, in any case, syncope has followed the abstraction of an unusually small quantity of blood while the patient was in a recumbent position, then we ought, in one or two hours, again to examine the patient, when probably it will be found that the action of the vascular system has renewed its vigour, and the inflammatory symptoms continue, so that if blood be again allowed to flow from the vein, a very copious bleeding will sometimes be requisite to reduce the pulse.

This “premature” state of syncope, as it may be designated, not

only arises from the patient's being bled in the erect posture, but is sometimes the effect of a moral influence, and, therefore, when under such circumstances the fainting state goes off, the inflammatory symptoms may soon reappear.

A gentleman was seized with severe pains in the bowels, accompanied by a good deal of tenderness on slight pressure, along with some degree of febrile excitement. On opening a vein in the arm, only a few ounces of blood were removed, when the pulse sunk and he fainted. I visited him about two hours afterwards, and having recovered from the state of fainting, but not having experienced any relief, I again applied the bandage on his arm. Blood flowed freely from the wounded vein, and he did not fall again into a state of syncope, until he had lost about thirty ounces of blood; and this, along with purgatives, was followed with permanent relief.

It is not unusual, particularly in this metropolis, for medical men to give to others instructions to take a certain quantity of blood from a patient, with the same degree of confidence as they would prescribe a particular dose of some drug. Nothing can be more absurd in principle, and more injurious to the sick, than such a custom. The only indication to direct us in measuring the quantity of blood which ought to be abstracted in individual cases, is the change produced both on the pulse, and in the local pain experienced during the operation. We ought, therefore, never to hazard any preconceived opinion of the quantity of blood which it may be necessary to remove in any particular patient, but sedulously to watch the effects of the evacuation whilst it is proceeding.

It often happens, that a pulse in which little deviation from the natural state can be detected, and which deviation, considered singly, might not particularly indicate the necessity of bleeding, begins to rise, and to acquire vigour after a certain quantity of blood has been lost, its force not being subdued until a large quantity, and a quantity much greater than could have possibly been anticipated, is removed. On the other hand, we frequently meet with examples of disease where the very reverse happens, and where a person, apparently of a full habit, with a strong elastic pulse, becomes quite depressed after losing but a very small quantity of blood. It is, indeed, with bleeding as with purging—some persons not appearing to be lowered even by the most active purge, while others are greatly depressed, and the whole system apparently deranged, by the operation of a brisk purgative.

It is singular how small a quantity of blood some persons can lose; even the very impression on the mind that blood is to be abstracted causes sickness, and fainting comes on after a few ounces of blood have been removed. In such cases, however small be the quantity which is evacuated, there is often a decided relief—the syncope sometimes causing even a permanent subsidence of inflammatory symptoms.

If the observations which I have made be correct, surely no one should pretend to specify beforehand the precise quantity of blood

which any patient requires to lose. How little, therefore, must that practitioner consider the well-being of the sick, who, instead of performing the operation himself or witnessing its effects, ventures to *prescribe* the loss of any particular quantity of blood! Such conduct calls for the severest animadversion. And if the report be true, that practitioners have allowed their patients to remain several hours in a state of great suffering or even in a fit of apoplexy, rather than themselves perform the operation of venesection, it is only surprising that the legislature has not interfered—just as the law punishes those whose want of skill or whose neglect is the cause of injury to persons who are placed under their care.

In forming an opinion of the probable extent to which bleeding should be carried in different instances, we ought to be aware that, in general, fat people can lose much less blood than lean persons, and large and robust individuals do not require the same extent of depletion in inflammatory diseases, as those who are thin and appear to be more delicate. So it is with respect to age, the young and plethoric often bear much less bleeding than the old and thin.

To prevent, therefore, being guided by any preconceived notions on this point, I am always in the habit of letting the blood flow into a large basin, and allowing no other circumstances to influence me in estimating the quantity to be removed, than the abatement of the local pain, and the changes in the action of the heart and pulse, to which I have already alluded. With these, I may almost venture to say, guides unerring, and after observations on numerous examples of diseases apparently similar, it is extraordinary to remark the difference in the quantity of blood which it is necessary to remove for the cure of different cases.

DISCOURSE IV.

Quantity of blood to be abstracted, continued—How to be estimated—Syncope—How beneficial—Copious natural hemorrhages often not injurious—Blood-letting, when to be repeated—Differences in the condition of the Blood.

In the last discourse I dwelt more particularly on three points:—the peculiar *incompressible* state of the pulse which, in conjunction with other symptoms, indicates the propriety of general blood-letting;—the importance of the *first bleeding*, and the almost insuperable difficulties which are often to be overcome when this first depletion has been too sparing;—and, lastly, I endeavoured to point out the propriety of abstracting blood until a state of fainting or *syncope* supervened, in all those cases wherein venesection is decidedly preferable to local bleeding.

We are now naturally led to enquire—What is generally the quantity of blood which it is necessary to abstract at the first bleeding, in order to produce fainting? Such, indeed, is the variety of

the constitution of individuals—such the difference in the severity of disease—and such the variations in the period when called on to treat particular cases, that, whilst in some the pulse sinks after the removal of but a few ounces of blood, depletion must in others be carried to a great extent before syncope is produced.

When employing venesection, and observing the indications which have already been pointed out in order to regulate its extent, it will be generally found that the quantity of blood which can be removed before fainting comes on, is, in fact, not more than is requisite for the cure of the disease. Hence a person in health usually faints from the loss of a comparatively small quantity of blood, whilst the same individual, after suffering even a few hours from active inflammation, may require to lose an almost incredible quantity, before he falls into a state of syncope—a quantity, however, essential for the cure of the disease. I have also observed, with regard to *leeches*, that the quantity of blood which flows from their bite varies according to the degree of congestion in the vessels of the part to which they are applied, and, likewise, according to the necessity or propriety of such a quantity being removed. Hence blood often flows for many hours after the first application of leeches, whilst an equal number applied at a subsequent period, when the disease has been greatly subdued, yield comparatively a very small quantity of blood. This difference must doubtless depend on the different condition of the vessels at the different times the leeches are applied; and so it is with regard to venesection: a large quantity of blood may be taken away at the first bleeding before syncope is produced, whilst, at every succeeding operation, fainting comes on from the loss of a smaller and still smaller quantity.

If we are to be guided in the employment of blood-letting by the principles which I have been endeavouring to inculcate, it will readily be conceived that there must be great difference in the quantities of blood abstracted in different examples even of the same disease; and whilst, in some instances, we shall be disappointed with the smallness of the quantity which flows from a vein before syncope supervenes, in others it is surprising to what an extent the depletion may be carried, with the happiest results. Hence the difficulty of attempting to give any thing like a precise idea of the quantity of blood which patients require to lose for the treatment of particular diseases. It would be no less absurd to attempt specifying the quantity of purgatives or diaphoretics necessary to complete the cure of a fever! The best general notions on this point can only be attained by observing the quantity removed in a series of cases wherein blood-letting has been judiciously employed.

In the army and navy, where inflammatory diseases assume a very severe type, surgeons are in the habit of abstracting thirty, forty, and sometimes even more than fifty, ounces of blood at the first bleeding; and where the treatment is thus energetic even at its commencement, from one to nearly two hundred ounces of blood

have frequently been removed before the disease has been subdued. But amongst those classes of the community where the physical frame is slender, the loss of a comparatively small quantity of blood is found sufficient to relieve and check inflammatory diseases. There is an observation which I would here venture to make as the result of my own experience, as well as from the many opportunities I have had of witnessing the practice of others—that, of a considerable number of persons bled for inflammatory diseases, those who have lost the largest quantities of blood, by the fewest operations, have made the most rapid recoveries; whilst those who had been more frequently bled, and had lost even a greater quantity of blood, have recovered much more slowly, and have had, more frequently, some permanent structural change of the affected organ.

The state of fainting—which I have already endeavoured to point out as an unerring criterion for estimating the extent to which blood should be removed in those cases where general bleeding is most expedient, such as in inflammatory diseases attended with febrile disturbance, and in congestions affecting the vital organs—is, by most practitioners, taken as a guide; and though some have argued that a state of syncope thus caused may be pernicious and even dangerous, I have neither met with, nor have I ever heard of, cases where general bleeding judiciously resorted to and carried so far as to produce syncope, was followed by any serious mischief.

In considering this point we ought carefully to discriminate between those cases where the bleeding has been employed as a curative means, and those wherein a profuse hemorrhage has taken place from wounded vessels, as from accidents, or from a partial separation of the placenta. In these hemorrhages the bleeding may not only produce syncope, but such may be the size of the wounded vessels, that the blood will continue to flow until life is nearly, or even sometimes completely, extinguished. But in the operation of taking blood from a vein, its flow can and ought to be arrested whenever syncope takes place; and surely no surgeon ever attempted to persevere in continuing to abstract blood from a person in this condition. On the other hand, the state of fainting is to be considered as an index of the quantity of blood which is necessary to be removed for the relief of the disease; and, as I have already said, it will always be found that the quantity is in the ratio of the propriety and necessity of abstracting it.

Though it has been stated that in no case of syncope produced by venesection have I ever witnessed any subsequent pernicious effects, yet in some cases it has been carried to the very last extremity, the consecutive symptoms having caused great alarm to the by-standers as well as to the operator. Such cases, however, must be truly rare; for, accustomed as we are daily to hear of persons being bled to a great extent, yet such alarming effects seldom happen: and it ought also to be recollected how many hundreds, or even thousands, of persons in this community are

bled every day, and how few accidents of any description ever occur.

The most alarming effect of syncope from venesection I ever saw took place in a medical person, who had an attack of inflammation of the brain, and for which he had been repeatedly bled, both by venesection and leeches, but in small quantities and without relief. His condition was characterised by a dull unceasing pain in the head, which did not influence the intellectual functions, but was attended with great intolerance of light, sound, and motion. The pain becoming more intense, though his pulse was so natural in frequency and apparently so feeble as to discourage his attendant from repeating the bleeding, yet he could himself detect an incompressible feeling in it, which peculiar feeling he considered to be an unerring index of the propriety of venesection. His attendant, contrary to his own opinion, however, again opened a vein, and after a very few ounces of blood were abstracted the patient became faint, which caused the removal of the bandage. When he recovered from this state, which soon happened, and was able to apply his own finger to the pulse, he could still distinguish its incompressible character; and, experiencing the fixed pain in the head, he entreated his friend to replace the bandage. This done, a very large quantity of blood was removed before he again fainted, and the syncope was so complete that he remained insensible upwards of five hours. During this period those around him were in the greatest apprehension, the powers of life being so exhausted,—the pulse could not be distinguished at the wrist, and the respiration could hardly be recognised. Such, however, was the effect of this protracted state of syncope on the disease in the head, that when the patient awoke, as it were into life, and was able to articulate, his first expression was, that the pain in his head had vanished, and that his pulse was completely subdued. This patient's subsequent recovery was speedy and complete, requiring no further remedial means—and in about six weeks his health and strength were perfectly restored.

This interesting and no less instructive case demonstrates, in the most striking manner, how completely inflammatory disease can be not only arrested but subdued, by producing a diminution of the heart's action; and it also shows how, in the treatment of diseases, though a very moderate venesection may diminish the unnatural action of the vascular system, yet, when the depletion is pursued to the extent of producing syncope, the longer the duration of that syncope, so much the more completely will the inflammatory action be subdued. The state of collapse, as it is called, which antimonial preparations produce by their influence in diminishing the action of the heart and arteries, subdues inflammatory disease on the same principle as the abstraction of blood.

In a few instances I have observed persons recover from inflammatory affections, whose vital powers appeared so reduced as to render their condition apparently hopeless, but which low state ultimately seemed to be the very means of arresting the disease.

A girl, about ten years of age, had suffered severely from hooping-cough and congestion in the brain, for which the depletive system had been adopted; and such was ultimately the state of debility to which she was reduced, that she was apparently lifeless, and surrounded by her parents bewailing her approaching dissolution! Without a shadow of hope, I poured a spoonful of wine into her mouth, and instructed the attendants to give beef-tea and wine alternately, and at short intervals. Considering any further professional attendance unnecessary, and calling the following day on the other medical adviser, requesting him to get permission to examine the body, think of my surprise, when with a smile he informed me that the patient was doing well, having recovered every hour after the exhibition of the cordials!

Cases of this description ought to teach the propriety of never ceasing to lend our assistance, for the purpose of prolonging life, however slender it may appear; and I am confident it not unfrequently happens that the state of great debility or collapse, in which we may occasionally observe those who have severely suffered from febrile diseases and large depletions, becomes the very means of checking the progress of the disease. Such an effect is most to be anticipated, even when life has been apparently nearly extinguished. In the diseases of children, more particularly when the vital powers have been greatly exhausted, and the child refuses his food, I have frequently known instances of infants in this state, and life despaired of—no endeavours being made by the parents to prolong existence—where the vital powers of the child were resuscitated by forcibly separating the teeth and forcing cordials into the mouth, taking great care that the fluid was conveyed by the spoon to the root of the tongue. The truth of the common maxim, that “whilst there is life there is hope,” is here strikingly exemplified.

From a general impression that blood-letting ought not to be employed but in diseases of a serious character, and that it is a remedy from which much mischief may ensue if carried to too great an extent, or employed in improper cases, it is, I am convinced, on many occasions too tardily resorted to, and too sparingly used; whilst we every day see medicines, the effects of which may be highly injurious to the constitution, fearlessly and carelessly exhibited. That a dread of blood-letting is not founded on sound observation, is demonstrated by noticing the effects of spontaneous hemorrhages and of profuse bleedings, so often the consequence of injuries, and also in diseases where they accidentally take place.

Alarming hemorrhage sometimes ensues during or after operations; and it is important to remark, that those patients recover most speedily, and have much less fever, in whom such a large quantity of blood has been lost.

In the spontaneous hemorrhage from mucous membranes, as those from the nose and rectum, it is extraordinary what large quantities of blood often persons lose with no other sensible particular effect than more or less debility.

A man was admitted into the Hospital of Surgery with dropsy, which he expected would be relieved by tapping. A few hours after his admission, he was seized with bleeding from the nose; and, although his pulse was feeble and his skin cold, having already lost not less than two quarts of blood, I bled him at the arm, after which the bleeding from the nose ceased. But the particular circumstance in this case was, that, notwithstanding the great loss of blood, his pulse on the following day became firm and wiry, and was accompanied by pain in the abdomen; he was, therefore, again bled at the arm until he became faint. On the second day the pulse rose, and he was bled a third time, after which he was tapped, and got a large dose of calomel and opium. This treatment had the effect of completely mitigating his sufferings. Calomel and squills were then given, until his gums became tender. He left the hospital, fourteen days after his admission, completely relieved, and a few weeks afterwards I saw him in perfect health.

The quantity of blood which some persons lose from hemorrhoids is also extraordinary. I have known instances of delicate females losing daily from such tumours, on an average, from half a pint to a pint of blood for many months, and even years—a quantity which, compared with the largest quantities of blood ever removed by artificial means, appears astonishing; and the slight disturbance of the system, which such profuse hemorrhages occasion, seems indeed unaccountable.

Similar effects of the loss of large quantities of blood are exemplified in cases of varicose veins accidentally ruptured, from which immense quantities of blood have sometimes escaped, without any perceptible injurious consequences. Petit particularly mentions such cases.

Hemorrhage, to an enormous extent, sometimes happens on the field of battle, wounded soldiers having been often left apparently lifeless from loss of blood; and it is important to remark, that such of the wounded recover with unusual rapidity, from the complete check which is given by depletion to any consecutive inflammation.

Very extraordinary, also, is the quantity of blood that females sometimes lose from the partial separation of the placenta, yet, generally, without any other bad effect than temporary debility. Women under such circumstances have been known to lose several quarts of blood in a few hours!

These facts, taken collectively, prove to what an extent blood may be lost, without being followed by serious consequences; and the practical conclusion to be deduced from such facts is, that blood-letting may, when judiciously managed for the cure of disease, be extensively employed.

Though, in the generality of cases, much depends on the full quantity of blood being abstracted at the first bleeding, as well as on resorting to blood-letting in the early stages of disease, still there are other instances wherein the complaint can only be cured by the frequent repetition of venesection.

The frequent repetition of blood-letting is rendered necessary by various causes. In some instances it becomes requisite in consequence of a fainting state coming on after only a small quantity of blood has been taken away; and, in other cases, when the pulse sinks after a very moderate quantity has been removed.

But when, from whatever cause, the quantity of blood abstracted has been small, it ought to lead to the more close watching of any return of the symptoms, and prepare us to repeat the bleeding.

Now, it frequently happens that, on the repetition of the venesection, the cause which prevented the first depletion from being made sufficiently copious no longer exists—so that, at the future bleeding, any quantity of blood which may be deemed necessary can be readily abstracted.

But the most frequent cause which renders a repetition of venesection requisite is, that, to whatever extent the first bleeding may have been carried, one depletion is seldom sufficient to check the progress of a severe attack of inflammation, particularly in an important or vital organ.

Always bear in mind, that the more complete has been the syncope arising from the first bleeding, and the sooner the second bleeding is performed after the pulse has begun to rise, the less will be the quantity of blood necessary to be taken away at the second bleeding, as well as the aggregate quantity for the completion of the cure. After the first bleeding, therefore, the pulse ought to be closely watched, due attention being also paid to the other symptoms; and whenever the vascular system has begun to recover its vigour—which may take place in three, six, or twelve hours—then replace the bandage on the arm, wipe away the coagulum in the wound of the vein, and allow the blood to flow, until the strength of the heart and arteries be again subdued.

There are appearances which the blood presents, both whilst it flows from a vein and after it has been kept some time and allowed to coagulate, which appearances have been considered as affording criteria for regulating the quantity of blood to be withdrawn, and also for the repetition of the venesection.

In violent inflammations, the blood usually flows from the wound in the vein with great force; whereas, in other conditions of the system, the stream is comparatively slow. In the first condition, bleeding ought to be as profuse, as in the latter it should be limited.

The colour of the blood as it flows from the vein, also varies in different examples of disease, being in some very florid, or of a scarlet red, and in the others of a crimson red or deep purple colour. The first state of the blood indicates the propriety of bleeding, whilst the latter points out a state of the system where but a very moderate depletion is admissible.

The appearances which blood assumes after it has been allowed to stagnate, are also supposed to afford criteria for the repetition of venesection. The appearance of a buffy coat, and the comparative quantities of crassamentum and serum, have especially been

considered as an index of the existence of inflammation, and of the propriety of blood-letting.

Whilst all these circumstances are mentioned, I must at the same time repeat what was stated in a former discourse, when explaining the different changes of the blood, that *these* can never be a criterion for estimating the quantity of the sanguineous fluid which it may be proper to remove, whilst the blood is flowing from the vein, neither can any appearance of the blood after its coagulation guide us in repeating the venesection. The appearance of the buffy coat has been chiefly dwelt on as an important character of the inflammatory diathesis; but it has been already observed, that the buffy coat is not to be considered either as a certain test of inflammation, or as a safe index of the propriety of blood-letting. There is usually no appearance of the buffy coat in blood removed from persons affected with violent inflammations until the latter stage of the disease, and at the very period when the further abstraction of blood would be pernicious; in many diseases, on the other hand, where blood-letting is unnecessary or even hurtful, the buffy coat may be occasionally observed.

DISCOURSE V.

Causes of failure in Venesection; how to be remedied—Operation of Venesection—Different Methods of abstracting Blood; when to be employed—Venesection—Cupping—Leeches—Scarification.

In endeavouring to point out the indications by which the quantity of blood should be regulated, when blood-letting is had recourse to in the treatment of diseases, it has been taken for granted that the surgeon has it always in his power to abstract whatever quantity he may deem necessary. This, however, is not always the case, or, at least, the requisite quantity of blood is not always obtained without difficulty, and nothing is more common than to hear of patients suffering from not having lost a sufficient quantity of blood, it having been affirmed that it was impossible to bleed them to the desired extent.

I have always considered it a dangerous maxim to admit the possibility of such an occurrence; and have ever contended that any requisite quantity of blood can, by some means or other, be taken from every patient. Should the veins in the arm be inadequate for this purpose, then may the jugular veins, or the veins of the wrist, or those of the feet, be resorted to. Or, in cases of danger, and when no time ought to be lost, why should not an *artery* be opened? The most severe operations are daily performed in order to save human life, and surely a fellow-creature should not be allowed to die for want of losing a quantity of blood! In the *Transactions of the Med. and Chir. Society*, there is narrated a

case, wherein the necessary quantity of blood could not be obtained from the veins of the arm, and where the bold and decided practice of opening the *radial artery* was successfully adopted.

I recollect only one instance where I could not obtain, by venesection, the desirable quantity of blood; here, the patient became so extremely cold that scarcely any blood would flow from the wound—a circumstance which had happened to her on several former occasions.

It ought also to be remembered, that when neither venesection nor arteriotomy can be performed, a large quantity of blood may be abstracted by leeches or cupping. The French are in the habit of applying at one time from fifty to a hundred leeches in cases where we would employ venesection.

It will here be proper to allude to some circumstances which, from a want of due care in performing the operation of venesection, are frequently the cause of failure in procuring the requisite quantity of blood.

The operation of blood-letting seldom has that degree of attention paid to all its details which it so well merits; and although every one considers himself perfectly capable of performing so simple an operation, still it cannot be denied that it is often executed by one person much better than by another, being, indeed, after all, seldom perfectly well performed. The incision in the vein is either too small or unnecessarily large, or in too transverse or too longitudinal a direction—the bandage is applied too tightly or too loosely, or there is some circumstance essential to the success of the operation, however trifling it may appear, which has not been duly attended to. The assertion of the late Benjamin Bell does not go too far when he affirms, that “Whilst I have frequently seen every other operation well performed, I have seldom seen blood-letting, with a lancet, correctly done.”

I would strongly recommend the study of his writings on this subject, and to take care, when performing the operation of venesection, that strict attention be paid to every step—that the largest and most superficial vein in either arm be selected—that the bandage when applied be neither so loose as insufficiently to compress the veins, nor so tight as to diminish the flow of blood through the arteries—and also that the inferior edge of the bandage be close to that part of the vein where the wound is to be made—that the lancet be perfectly sharp, and the wound in the vein be made sufficiently, but not too large, and have a proper degree of obliquity—that the patient be placed in a recumbent posture, having the arm resting upon a common hand-basin, one side of which will support the upper arm, and the other the fore-arm, and thus prevent his being fatigued; by this method of supporting and fixing the arm, the orifices in the skin and vein will also be kept in accurate correspondence during the operation.

All these circumstances demand attention in performing the common operation of phlebotomy; and as so much depends—even the life of a patient—on the prompt and successful manner in

which it is executed, we cannot bestow on it too much consideration.

When there is a probability that it will be necessary to repeat the blood-letting, the pain of making a new incision may be saved by simply anointing the lips of the wound—which prevents their being agglutinated. If this has been neglected, the bandage must be re-applied to the arm, and, when the vein has become fully distended, the agglutinated lips of the wound may be separated with a probe, or the head of a common pin, by which the blood will flow as freely as during the first operation.

Before our attention is directed to the comparative effects and to the comparative advantages of abstracting blood by each of the several different operations of venesection, arteriotomy, cupping, leeches, and scarifications, it is of importance to recall to mind those states of the system which require the use of this remedy.

I have already mentioned that whenever local inflammation exists to such a degree as to excite fever, venesection is then decidedly preferable to any other mode of abstracting blood. I have also endeavoured to point out what appeared to me to be the disadvantages of arteriotomy, and the few cases and particular circumstances to which that mode of depletion is applicable.

In all cases of local inflammation where the general system is not disturbed, leeches are to be preferred to venesection; whilst the operation of cupping holds as it were a middle place, being applicable in cases where there are no febrile symptoms, and where leeches might be employed;—as in local inflammations and congestions, and also in cases where the action of the vascular system is increased. In all inflammations and congestions about the head, cupping on the back of the neck and between the shoulders is a most useful mode of abstracting blood, and this operation is also particularly applicable for the removal of blood from the parietes of the chest and abdomen, in diseases of their internal viscera. Its use, however, is only admissible when it can be employed without exciting pain, and irritating the diseased organ. In such cases I have often seen cupping do mischief. For the same reasons cupping inflamed joints, or parts accompanied by external tenderness, is often injurious, so that in such cases leeches are decidedly preferable. Cupping is preferable in those cases where the application of leeches is followed by severe erysipelas of the skin, except in those cases where a counter irritation is desirable. The very circumstance of the cupping-glasses irritating the tender parts, and drawing blood to the place where they are applied, renders cupping an eligible mode of abstracting blood in cases of congestion, more particularly of the brain, the operation being, in such cases, performed at the nape of the neck. Cupping, however, is the least preferable mode of abstracting blood when the application of the glasses excites pain, and increases the influx of blood to the diseased part. Although, therefore, the operation of cupping may be, under many circumstances, an useful and even the most preferable mode of abstracting blood, yet it cannot be

denied that there are no cases where cupping can be useful in which all the essential benefits of abstracting blood by that operation might not be obtained either by venesection, or by leeches, or by a combination of both those methods. I have often remarked, that in this metropolis, where there are so many dexterous performers of this operation, patients, more particularly those subject to congestion in the head, are apt to indulge in a luxurious system of living, the bad effects of which they can always have readily but temporarily removed by cupping.

Leeches are by far the most eligible mode of *local* blood-letting in the generality of cases, not only because they procure the necessary quantity of blood from parts where the application of the cupping-glasses would cause pain and irritation, but also because, from the dexterity required to perform the operation of cupping, it is seldom well done, and cannot be commanded in situations and at times when leeches may easily be procured.

In the application of leeches, it is important to be aware that the bleeding from their wounds is never in the ratio of the number applied; and it is often surprising to find three or four leeches bleed as much on one occasion, as at least double the number on another. Usually, when a large number is applied, the blood flows most freely from a limited number of wounds, which continue to bleed long after the bites of the others have ceased. This probably depends on the principal vessels supplying the part on which the leeches are applied being wounded, and on those wounds which happen to be made nearest the heart bleeding more than those in the remote branches. The bleeding, too, from leeches varies much in quantity, not only according to the state of the circulating system generally, but also according to the degree of inflammation or congestion in the part where they are applied: and very remarkable is the difference in the bleeding from the same number of leeches on the same part at different times, the quantity diminishing as the fulness of the vessels is diminished. This fact coincides with the observations I made on the quantity of blood necessary to produce syncope in inflammatory diseases, which I remarked was always in proportion to the quantity necessary for remedying the disease.

I was consulted in the case of an old lady who had all the symptoms of hypertrophy of the heart, the impulse of which organ had become extremely vigorous, with excessive embarrassment in breathing. In place of venesection, I recommended the application of four leeches on the region of the heart. The leech-bites continued to bleed freely during fifteen hours, subduing both the unnatural vigour of the pulse and the action of the heart. Two days afterwards the same number of leeches were again applied, and, to the astonishment both of the patient and her other medical attendant, but a very small quantity of blood came away.

Leech-bites, moreover, bleed very differently at different seasons and in different states of the atmosphere,—over which we have no control. It is also of importance to keep in mind, when compar-

ing the effects of cupping and leeches, that advantages are derived from the long-continued fomentation of the affected parts to which the leeches have been applied, as also to the soothing influence of a poultice, which ought always to be used after the fomentations.

One disadvantage of the use of leeches is the difficulty of regulating the extent of the bleeding; but I have always observed, that the discharge from their bites usually depends on the degree of congestion of the vessels of the part to which they are applied, and that they seldom bleed more than is requisite. When it becomes from any cause desirable to put a stop to the bleeding, this can in most cases be readily effected by simply exposing the surface of the part to the external air, and allowing the blood in the orifices to coagulate. The usual practice of applying compresses and bandages, and heaping them on in proportion to the activity of the bleeding, tends to promote instead of checking the flow of blood.

I was sent for early one morning to visit a lady who had violently sprained her wrist on the preceding day, and for which she had been advised to apply leeches. They had bled freely all the evening, and so profusely during the night, that a variety of styptics, compresses, and bandages, were used, but without arresting the hemorrhage. The injury having been severe, and the pulse not being altogether subdued, I told her that she had not lost too much blood, and that the constant oozing from the leech-bites had been the means of preventing the accession of inflammation. The patient being alarmed, however, I thought it expedient to arrest the bleeding, and scarcely had the bandages and thick compresses been removed, all of which were soaked in blood, and the hand and arm exposed to the cool air, than the flow of blood began to diminish, and in a few minutes it had completely ceased.

When this simple means is not sufficient to stop the bleeding from a leech-bite, a small compress is to be applied not larger than a finger-nail, consisting of several folds of lint, directly upon the bleeding orifice, on which such a degree of pressure is to be made with the point of only one finger as shall be found sufficient to stop the bleeding; this pressure is to be steadily continued until all tendency to bleeding has completely ceased. I have never known a failure of this practice, except in a few cases where the hemorrhage arose from the blood wanting its usual coagulating power, and in some children, where from the leeches having been applied to the neck, and more particularly where the leeches were of a large size, the necessary degree of pressure could not be employed. In the first class of cases, touching the orifice with the nitrate of quicksilver produces an immediate coagulation of the blood, with which it mixes, and thus plugs up the wound. Caustic may be in like manner employed in hemorrhages from leech-bites in children, and Sir Charles Bell has, in troublesome cases of this kind, stitched the lips of the wound together with a fine needle and thread; or the needle may be allowed to remain for some hours in the wound, its thread twisted round it, as is done in

making the twisted suture, a firm and unyielding compress being thence formed on the wound.

Besides being a most powerful remedial means in the treatment of local inflammation, leeches are in a more especial manner preferable to general blood-letting in all cases of local injury previous to the accession of fever,—or after the febrile symptoms have been subdued by general bleeding. When a part is bruised, the whole frame receives a shock in proportion to the severity of the accident, and no sooner does the system recover, and reaction take place, than the bruised part becomes more or less tense and painful;—these symptoms indicate the commencement of inflammation. If, in this condition, a sufficient number of leeches be applied to the parts, the inflammation will be immediately subdued, and if they be again and again applied, without delay, and in numbers proportionable to the severity of the symptoms, or whenever there is any return of pain and swelling, we can thus completely check and subdue every inflammatory symptom, and avert all the evils of the accident.

A gentleman fell from his horse, and severely bruised the elbow-joint and surrounding soft parts. Leeches were employed immediately after he recovered from the shock occasioned by the injury, which, along with fomentations and poultices, afforded great relief; but cessation of the bleeding was always followed by a return of the pain and tension. More leeches were then applied, and so on; one or two dozen being repeated whenever the bleeding from the former wounds ceased and the pain returned, so that in four days one hundred and eighteen leeches were applied. The effect of this practice was, that in eight days this patient had completely regained the use of his arm, and, except the debility, from which he recovered in a few weeks, no bad effects ensued. In this manner, and on this principle, have I, by the repeated application of leeches, kept up a constant oozing of blood from injured parts, until every inflammatory symptom has been completely checked and subdued.

When this system of treatment is not employed early,—almost immediately after the effects of the shock have passed away, and when time is given to the inflammatory symptoms and a febrile disturbance of the system to supervene, then the treatment must commence with general bleeding, conducted on the principles which I have already endeavoured to establish.

Local bleeding, however, when employed even without unnecessary delay, after the receipt of an injury, is not however always sufficient to prevent the accession of febrile symptoms, more particularly when the injury has been severe, and the injured parts have an important function to perform in the animal economy. Hence it will be found a useful practical rule that, whenever in any case of injury, local bleeding is not sufficient to check the accession of fever, general blood-letting ought to be unhesitatingly adopted.

In no instance did I ever witness the good effects of this rule

more strikingly exemplified than in that of a medical gentleman who received an injury of the knee-joint of unusual severity. Whilst walking through a wood at a place where the branches were so numerous that he was compelled to stretch both his arms in order to hold up the gun with which he was shooting, one of his feet became entangled with a twig, and not being able to receive any assistance from his arms, he made a powerful exertion of his leg to prevent his falling. In making this effort, and being of an athletic form, the right knee-joint was wrenched so violently that he fell down, and it was not until the lapse of a considerable time that assistance could be procured and that he could be liberated from this situation, and conveyed home with great suffering, a distance of thirty miles. When I saw him, twenty-four hours after the accident, the whole knee was then greatly swelled, tense, extremely painful, and accompanied with violent spasmodic twitchings of the limb. But in place of any febrile excitement his skin was cold and his pulse was below the natural standard,—and he appeared not to have recovered the severe shock of the injury. Leeches were accordingly applied to the joint, which with fomentations and a poultice afforded no substantial relief. In ten hours I again visited him. The pain and spasmodic twitchings of the limb had now become agonising—the skin hot—and though the pulse was not increased in frequency, yet it had a contracted feel—there was a difficulty in compressing it, which decided me in opening a vein in the arm. The blood flowed in a very profuse stream, the pulse gradually acquiring vigour, and I determined to let blood escape until the pulse should be quite subdued; being impressed with the opinion that such was the extent and severity of the injury of the joint in this patient, that, unless the most energetic means were at once adopted to prevent the accession of inflammation, the limb would be placed in a state of great danger, and even the patient's life would not be altogether safe.

No less than seventy-four ounces of blood, by measurement, were abstracted before the pulse faded, and even then complete syncope did not supervene, but the patient remained for many hours in a condition which approached to fainting. In this state of prostration, and with the vigour of the organs of circulation quite subdued, did he remain four days,—every attempt to raise himself causing giddiness and a disposition to vomit. From the period of the venesection, however, the pain was alleviated, the swelling and tension of the joint gradually diminished, and no febrile symptoms ever recurred, and, excepting a few leeches which were applied to those parts of the knee which continued particularly tender with a poultice, no further remedial means were required. The subsidence of the swelling though slow was progressive, and, except some portion of the parts around the joint which were torn, the patient got well; so rapidly indeed did he recover the effects of the enormous depletion, that in three or four weeks the prostration caused by the blood-letting, and the shock which the whole system received from this severe accident, were completely over-

come, and never afterwards was there any circumstance attending his recovery which could be attributed to the loss of such an unusual quantity of blood.

If, besides a bruise, there be a wound of the soft parts, the subsequent hemorrhage often effects much in checking the approach of inflammation; and hence, when wounds have bled freely, and when they have not been irritated by dressings and bandages, it is seldom that any inflammatory symptoms ensue, nor does any local or general bleeding become necessary.

When leeches cannot be procured, the requisite quantity of blood may be obtained by opening with a lancet one or more of the veins contiguous to the injured parts; and this mode of blood-letting is particularly applicable in injuries of the extremities, where there are so many veins sufficiently large and accessible. The advantages of applying leeches, which have been enumerated, are also to be derived from this method, in all local affections where the parts from which the blood is to be withdrawn are tender to the touch, and where any other mode of local blood-letting is inadmissible.

Leeches are also employed on a principle of *revulsion* as well as *derivation*, and hence they have been applied to the feet in affections of the head, chest, and abdomen. Whatever explanation be given, the good effect of using leeches at a distance from the affected organ in certain states of disease is indisputable, and this practice is particularly applicable in all congestions of blood. In affections of the head and thoracic viscera, where repeated small depletions are indicated, I have in many instances recommended patients to apply leeches on the head or chest, and on the feet alternately; and, when it has afterwards been requisite to repeat the bleeding, to make choice of that place for re-applying them which from experience was then ascertained to be the most beneficial. Almost universally, I may venture to say, a decided preference has been given to their feet. How often, indeed, do we see diseases in the head relieved by the discharge of even a few drops of blood from the hemorrhoidal vessels!

A lady had suffered during several months from violent cough, accompanied with difficulty of breathing, for which she had applied leeches on the chest, and a variety of remedies, without effect. When she consulted me, I recommended, besides other means, the repetition of the leeches, but advised her to apply them to the feet. Accordingly, four leeches were applied to each foot, and the relief was so speedy and complete that she required very little further treatment. The leech bites cause sometimes too much irritation, and are followed by such severe erysipelatous inflammation of the skin, that in many instances the disease for which the blood-letting has been employed, seems to be as much subdued by the counter-irritation caused by the leech bites, as by the sanguineous depletion—provided only that they have been applied at a distance from the diseased organ.

The powerful effects of applying leeches to the feet in relieving

congestion in the chest, was remarkably exemplified in the case of a gentleman who had been long subject to what was considered as an *asthmatic* cough, and which was particularly aggravated during the winter months. On one occasion he caught cold, and his breathing became much oppressed, accompanied with slight febrile symptoms. I advised him to apply four leeches on one foot. They bled freely, violent erysipelas supervened, which extended up the leg, and on the following day his chest was more relieved from a feeling of oppression than it had been for many months, and the cough was greatly mitigated.

A lady had long been subject to inflammatory attacks of the liver. I saw her with an excited pulse, great headache and pain in the side, dry and hot skin. Four leeches applied to one foot bled little, but were followed by a violent erysipelas of the foot and leg. In twelve hours, the pain in the side and violent headache were quite subdued, and afterwards, one grain of calomel, given every six hours for a couple of days, relieved all the symptoms.

There is no class of diseases where the effects of the local abstraction of blood are so well exemplified as in some of those of the eye, in which a quantity of blood may be taken from the conjunctiva by the operation of scarifying. The beneficial effects of applying leeches to the orifices of the different mucous canals, when depletion is required, are well established, and the operations of scarifying the conjunctiva, lancing the gums and tonsils, puncturing hemorrhoidal tumours, and making incisions in inflamed parts, all give relief on the same principle.

Scarifying the conjunctiva is a most useful operation, and one of the few methods we possess of abstracting blood locally, strictly so speaking. Simple as may be its performance, there are still several circumstances requiring nicety in the operation, and which are necessary for its success; and in the mode of its execution commonly adopted, instead of doing good, it often irritates and produces mischief. This operation was known to the Arabians, who performed it by inserting the serrated edge of the beard of the common barley into the conjunctiva, the wounds thus made bleeding more or less freely. But the most safe and efficient mode of performing the operation, is with a wedge-shaped scarificator, now in common use. The lancet is a very unfit instrument for this purpose.

The principle of this operation is, by wounding the conjunctiva, to get as much blood as possible. The wounds should only be made on the palpebral, and never on the sclerotic, conjunctiva; for when the vessels on the ball of the eye are divided, the operation invariably excites much more irritation than the loss of blood does good. The wounds, therefore, should be limited to the conjunctiva lining the eyelids, and it is only on the inferior lid that the scarification can be properly accomplished. The wounds, or scratches, should be made on that part of the membrane which is reflected over the cartilaginous tarsus—all its other portions are loose and unresisting, whereas on the tarsus the membrane is kept stretched,

and the cartilage affords a resistance sufficiently firm to admit of the ready division of the blood-vessels.

Before using the scarificator, we should completely evert the lower eyelid by the fore and middle finger of the left-hand, underneath the points of which is placed a thick dossil of lint; and this assists in keeping the lid everted, and in absorbing the blood, and, by compressing the lid on the lower edge of the orbit, the blood is made to flow much more freely.

The edge of the scarificator is to be held perpendicular to the surface of the conjunctiva, and the weight of the instrument is of itself sufficient to make the wound deep enough. One scratch—for it ought not to be an *incision*—along the tarsus generally answers the purpose, but several are sometimes necessary, and you can easily comprehend how one division of the same vessel should bleed as much as several. By retaining the compress, pressed moderately on the everted lid, it is often surprising what a quantity of blood is discharged, and the relief and benefit of the operation are generally in proportion to that quantity—just as was observed when speaking of the blood taken by leeches being in proportion to the turgescence of the vessels where they are applied.

It is worthy of remark, that the abstraction of blood by scarifying is never useful until the acute stage of the inflammation has passed. It is in the sub-acute, chronic, or passive stage, wherein such local depletions appear so decidedly useful. When the eye is suffering from an acute inflammation, the vessels of the palpebral conjunctiva are not much increased in number, appear chiefly arterial, and, when divided, yield scarcely any blood. But when the second stage of the inflammation ensues, there is a great increase in the number, and change in the colour, of the vessels—the arterial capillaries being diminished in number, while the venous are increased, so that the bright red colour of acute inflammation becomes of a more purple hue: in this state, blood flows copiously when the vessels are divided by the scarificator.

I may here remark, that the practice of applying leeches to the conjunctiva is one, the bad effects of which I have so often observed in the practice of others that I have never adopted it; they frequently create irritation, and there is an erysipelatous redness which sometimes follows the leech bite, which is very injurious.

DISCOURSE VI.

Injurious effects of Blood-letting—Immediately after Injuries—During an apoplectic fit—In particular cases of inflammation—In irregular distributions of Blood—In specific diseases.

Allusion has hitherto been made only to those diseases wherein blood-letting may be employed as the chief curative means; but there also is a class of cases wherein this energetic remedy ought to be used with much caution; and to these our attention ought always to be directed when contemplating the use of blood-letting.

There is one class of cases in which blood-letting is often very unnecessarily, and sometimes perniciously, employed. I allude to the common practice of bleeding persons immediately after an accident, or during an apoplectic or convulsive fit. In many accidents, more particularly where the head suffers, the first effects of the injury are a diminution or collapse of the vital powers; and if, under such circumstances, blood be abstracted, a still further diminution of these powers is produced. Hence it is not until the powers of life have revived, or a *reaction* has taken place, that we should, after severe injuries, employ blood-letting.

The servant of a medical society fell from a chair at the time of one of the meetings, and whilst still in a state of insensibility, surrounded with medical students, she was bled. It was at least fifteen months after that bleeding, although it was very moderate in quantity, before she recovered her natural strength. Many have suffered from a too early use of the lancet after accidents.

In cases of *apoplexy*, I believe that blood-letting has frequently been carried to a very unwarrantable, and even fatal, extent.

In proportion to the violence of an apoplectic shock, so are the powers of life diminished; and hence, if the quantity of blood abstracted be regulated by the *severity* of the symptoms, in like proportion will the practice be hurtful by still farther diminishing the vital powers. When a person is in a state of insensibility from an apoplectic fit, those around are too apt to urge the necessity of bleeding, conceiving that the loss of blood will relieve the disease in the head.

It is, therefore, proper in all cases to allow the *shock* to pass over, and circulation to revive, before abstracting blood; and the quantity which is taken away ought always to depend upon the vigour of the heart's action.

A surgeon was sent for to see a patient, who had fallen down suddenly in an apoplectic fit; he immediately opened a vein, and after abstracting only a few ounces of blood, the pulse sank. When he visited this patient, several hours afterwards, he found the powers of life so feeble that he ordered him cordials, by which the action of the heart and arteries began to revive. Soon after this, however, a physician was consulted, and he *prescribed* a copious venesection, after which the patient sank rapidly, and in a few hours expired.

In cases where there are organic changes in the brain's structure, and when the sudden apoplectic attack is caused by some vessel of the *diseased part* giving way and pouring out blood, blood-letting is of no avail; and when had recourse to when the pulse is feeble, and the vital powers already much diminished from the shock, it never fails to hasten the patient's death: therefore, under such circumstances, blood-letting ought to be resorted to with great caution.

A lady considerably advanced in life was found during the night lying on the floor—her servant, who was in an adjoining apartment, having been awoke by the noise of her mistress falling out of bed. She was found perfectly insensible, and the pulse so languid that the surgeon who was sent for ventured to take only a few ounces of blood by cupping; her pulse never revived, and in four hours she expired. It was found that her death was occasioned by an effusion of blood into the ventricles, the heart and aorta being also diseased.

It is in cases of this description that blood-letting, even to a small extent, must, by diminishing the powers of life, prove injurious, and, if carried beyond certain limits, inevitably hasten dissolution.

A patient who had long suffered from an affection of the heart, and who had for many years complained of a fixed pain in the occipital region, suddenly tumbled down senseless, and when he endeavoured to rise, the left arm and leg had become quite motionless. On visiting him a few hours after this attack, I found his pulse so feeble and the powers of life so depressed that, in place of a depletive system of treatment, I recommended the use of ammonia and camphor—and what was remarkable in this case was, that the paralysed limbs gradually acquired their natural power, and in four days the paralytic affection was completely removed. Four months after the illness he was again suddenly attacked, and, his condition being considered apoplectic, he was freely bled and purged, and in about twenty hours he expired!

On opening the head a large clot of extravasated blood was found in the substance of the left hemisphere of the brain—and in the right hemisphere there was a large cavity which contained a small quantity of a dark coloured sanguineous fluid, not sufficient to fill it, and which no doubt was the remainder of the effusion which had taken place during the first attack. The arteries at the base of the brain were much dilated, and their coats considerably thickened. There was dilation of the left ventricle, its muscular parietes were thickened, and some portions of the semilunar valves were ossified.

It ought however to be kept in mind that there are cases of simple congestion in the brain, producing a sudden loss of the intellectual powers, and convulsions, in which too much blood can scarcely be removed to save life; but in such cases the pulse usually acquires vigour, or rises whilst the blood is flowing from the vein.

A general officer, of a full plethoric habit, and who had suffered occasionally from *gout*, took, in consequence of a slight pain in the great toe, a brisk purgative, and whilst walking on the following day, which happened to be unusually cold, he felt a chill, suddenly became giddy, and fell down in the street, senseless and motionless. I saw him in this state, but his pulse, though strong, was little changed. I immediately opened a vein in the arm, and the blood flowed freely through a large orifice; at first the pulse gradually acquired strength, and increased in frequency, but was not subdued until upwards of forty ounces of blood were abstracted, when he immediately became sensible to things around him. In this state he was removed to his own house, and in a very few hours the vigour of the heart and arteries revived, accompanied by uneasy feelings in the head, when about the same quantity of blood was taken away as on the former occasion. These depletions, along with an antiphlogistic regimen, were the means of producing permanent relief.

There are also individuals in whom the loss even of a very small quantity of blood produces great exhaustion and depression, and where it is impossible to carry depletion to the ordinary extent, even when such persons are labouring under inflammatory diseases. But we cannot possibly be aware of such constitutional peculiarities or idiosyncrasies, unless by previous observation on the patient.

A lady about the middle period of life, who had suffered much from bad health, was suddenly attacked by all the usual symptoms of peritoneal inflammation. I found her in great agony, with a fixed pain in the abdomen, great tenderness to the touch, a very rapid pulse, and other symptoms of fever. Having taken repeated doses of opium without relief, I opened a vein in her arm, and before five ounces of blood were abstracted, the pulse sunk and she fainted. When I visited her two hours afterwards, she had recovered from the state of syncope, her pulse had revived, but was very rapid and easily compressed. The local pain not having abated, the bandage was replaced on the arm, and scarcely had a couple of ounces of blood escaped when the pulse sank, and she again became faint. The pain in the abdomen not being relieved, after having recovered from the state of syncope produced by the second bleeding, I gave her a grain of opium with five of calomel every few hours, by which means the pain and other symptoms were rapidly subdued.

Another nice point to determine in the employment of blood-letting, occurs in those cases of inflammation where the powers of life are already so much exhausted from the duration of the disease, that though there may be a probability of the inflammation being subdued by a repetition of the bleeding, yet the exhaustion produced by any further depletion may of itself destroy life. Under such circumstances, in place of blood-letting, recourse should be had to those other means which art possesses to control the action of the heart and arteries. I allude particularly to the use of large

and frequent doses of the tartrate of antimony—to mercury combined with opiates—and to colchicum.

It also happens that, in cases where bleeding has been employed, the local pains accompanying the disease do not subside, and symptoms continue, or succeed, just as severe as those which preceded the venesection.

In such cases it is a difficult point to determine how far bleeding is to be carried; and there are some men of experience and observation very acute in perceiving those symptoms which can only be relieved by blood-letting, and those which may be removed by blisters, anodynes, mercury and opium, colchicum, and such like remedies.

Bleeding will also be found more or less injurious when employed in cases where there is merely an irregular distribution of the blood—or where there is an undue quantity in a particular part, without any increase in the quantity of the whole mass. Such cases are quite different in their pathological characters, both from those of congestion and of inflammation, and these *three* different conditions ought to be accurately distinguished.

In *congestion*, the quantity of the sanguineous fluid is increased, or the vessels are in a state of plethora, but in an *inflamed part* there is a change of structure going on, so that if an organ in a state of congestion be compared with one which is inflamed, and each macerated in water, the blood of the first is washed away, leaving the natural structure unchanged; whilst in the inflamed organ, besides an increased quantity of blood, there is a change in the structure of the organ, more particularly an effusion of a sero-albuminous or puriform fluid, into the cellular membrane. Where there is an *irregular distribution of the blood*, and an undue quantity sent to a particular part, such as the head or chest, there is a corresponding diminution of blood in some other parts, as the legs and feet; and it is in such cases where the abstraction of blood is useless and sometimes injurious.

We have frequently examples of irregular distributions of blood in affections of the head and chest. Persons suffering from bilious and aguish headaches, as they are called, often have a flushed countenance, and an increased action of some of the branches of the external carotid artery; but they are not accompanied by any of those changes in the pulse which indicate the use of blood-letting, and are marked by symptoms showing a diminution of blood in some other parts of the body, and more particularly in the limbs, by a painful sense of coldness in the legs and feet.

Persons who have often suffered from bilious headaches, accompanied with a flushed face, and for which bleeding has been ineffectually resorted to, may, however, have also feelings of uneasiness in the head which are of a different character, and of that description wherein bleeding is highly beneficial. I have known several serious errors committed from the practitioner not being aware of this circumstance, and treating a headache where there

was a congestion of blood like an ordinary sympathetic headache; and patients themselves, subject to headaches from derangement in the digestive organs, are apt to attribute every uneasiness which they may at any time experience in the head to the same cause.

The late Dr. Baillie frequently suffered from headaches connected with chylopoietic derangement; and on several occasions they were so severe, that he had been induced to try the effect of cupping, but from which he never experienced the smallest benefit. Perceiving one day some spectra or images floating before his eyes, accompanied by uneasy feelings in the head, he asked my opinion; and considering that these symptoms were of a plethoric character, and indicated congestion within the head, I recommended the abstraction of some blood. To this he at first objected, not having found relief from former bleedings; but on representing to him the difference in the character of the present symptoms, he consented to have a few leeches applied behind the ear, which gave such relief as to induce him to repeat their application on the following day. By this treatment the spectra disappeared, and he was perfectly relieved from all uneasy feelings in the head.

A gentleman, who had often suffered from what he called "blind headaches" during forty years of his life, consulted the practitioner who lived in his vicinity relative to some feelings in the head. Considering these symptoms to be unconnected with the "blind headaches," he advised him to be bled at the arm, which advice, however, was not followed. He consulted another physician, who recommended to him the use of the sulphate of iron; and a third, whom he afterwards consulted, recommended tonics, wine, and a generous diet! Having pursued this plan, and while he was on a visit to London some weeks afterwards, I was hastily sent for to visit him, and found that the left side had become paralytic, with symptoms of congestion in the brain, for the treatment of which he required repeated blood-letting.

In those diseases usually called *specific*, such as syphilis, cancer, scrofula, gout, and rheumatism, blood-letting is often injurious, though it is useful when employed under certain circumstances and within certain limits.

Whatever organ is affected with acute rheumatism, there are always present symptoms of an inflammatory type. Yet it is well established, that persons suffering from this disease cannot bear very copious bleedings, and their too frequent repetition has certainly, in many instances, laid the foundation of chronic affections of the joints.

The same observation applies to gouty inflammation in any organ. We find that, in some cases, a certain extent of depletion will mitigate the inflammatory symptoms attending gout; but if the depletion be carried beyond certain limits, it no longer alleviates the pain; the whole system seems to suffer, and the local disease is apt, as in rheumatism, to assume a chronic and unyielding form.

With regard to the use of blood-letting in specific diseases, I may here observe that there generally is not only the *specific* disease to contend with, but there is also more or less common or *idiopathic* inflammation accompanying the specific disease. It is only this *idiopathic* inflammation which ought to be treated by blood-letting—the bleeding has no influence in subduing the specific disease.

It is not uncommon to observe a specific inflammation, once excited, thus cause an accompanying idiopathic inflammation. In *syphilis*, for example, we find that, besides the primary ulcer, a great degree of inflammation of the adjacent parts sometimes supervenes, which inflammation is relieved by bleeding, and would be aggravated by the use of mercury. It is after this idiopathic inflammation is removed, that we can proceed to the cure of the specific disease by exhibiting mercury.

So it is in the treatment of *cancerous affections*; the tension and swelling accompanying a scirrhus tumour can often be relieved by general and local blood-lettings—and in proof that such bleedings are proper, under certain circumstances, may be mentioned the *spontaneous* hemorrhages to which such diseased parts are subject, and the effects of blood-letting in relieving certain states of plethora and congestion of the adjacent viscera.

The same remarks apply to the treatment of *gout*. When gout affects any part of the body, the inflammatory swelling and pyrexia, which often accompany it, are relieved by bleeding, but the bleeding has no influence on the specific affection; and hence the usual practice in the treatment of gout is, first, to subdue any local inflammation and febrile symptoms by depletion, and then, and not till then, to administer the specific remedies for the cure of gout.

In the treatment of *scrofulous* affections, blood-letting will often be found essentially useful in relieving any accompanying idiopathic or common inflammation—though it has no effect, as I have observed of syphilis, cancer, and gout, in subduing the specific disease. Hence, when the lymphatic glands, the joints, or the lungs, are affected with scrofula, the inflammation which accompanies that disease will be mitigated by blood-letting; and hence, too, when such accompanying inflammation is subdued, the progress of the scrofulous disease is checked. But on the other hand, if blood-letting be pushed further than merely subduing inflammation, then, in proportion as the system is debilitated by the bleeding, so will the progress of the specific disease be advanced.

When the lungs become the seat of scrofulous tubercles, there is another source of relief derived from blood-letting, besides that of mitigating accompanying inflammation, and which ought to be kept in mind in the administration of this remedy. In proportion as the circulation in the pulmonary vessels is obstructed by the tubercular masses, so will the heart be liable to congestion; and hence the greater the extent of disease in the lungs, the greater will be the congestion of blood in the heart, and therefore there will be increased frequency of its action in order to remove its

undue quantity of blood. By abstracting blood under such circumstance the congestion is relieved, which quells the increased frequency of the heart and embarrassment in the respiration.

"A female, reduced to a hopeless condition with pulmonary phthisis, complained of a most distressing difficulty in breathing, and the action of the heart was so violently affected, that, although not the most remote hope could be entertained of her living more than a few days, yet in this state she was bled at the arm; and, after a few ounces of blood had been taken away, such was the degree of comfort she experienced, that in a few days afterwards, and almost immediately before she expired, she urgently solicited that blood-letting should be repeated."

DISCOURSE VII.

Curative effects of abstracting Blood in Fevers—In eruptive Fevers—In Scarlet Fever—Small-pox—Erysipelas—In acute Inflammations—In sub-acute Inflammations—In Congestions—In Wounds—In suppurated Parts—In sloughing Ulcers—In Ulcers of the Legs—Some anomalous effects of Blood-letting—Conclusion.

Having, in the foregoing discourses, endeavoured to explain most of the important circumstances connected with the subject of blood-letting—particularly the differences in the effects of abstracting blood from the arterial and venous systems—the differences in the effects of local and general bleeding—the indications for employing each of these modes of abstracting blood—the extent to which blood-letting ought to be carried, and also the injurious effects of abstracting blood,—I propose, before concluding this interesting subject, to make a few observations on the curative effects of blood-letting, and glance over those various classes of diseases to which our attention ought to be particularly directed in the employment of this powerful remedy.

In febrile diseases (the class "*pyrexia*" of Cullen), blood-letting, as a general remedy, must be considered one of the most essential; whether we contemplate its effects in the treatment of "fevers," properly so called—in the "*phlegmasia*," where there is an inflammation of some particular organ—or in the order of "*exanthemata*, or eruptive fevers."

In the treatment of *fever* there has been much controversy on the propriety of blood-letting; and, like most other discrepancies in medical opinions, I believe these are to be chiefly attributed to the observations of different writers not having been made under the same circumstances, and to there being no class of diseases that assumes a greater variety of type than fevers—not only in different countries and in different classes of the community, but even in different years and seasons in the same place. That fever which, at one period and in one class of persons, is mild, may in a

short time assume the greatest severity—whilst that which at another time appears in a severe and inflammatory form, demanding most energetic depletion, may, at no very distant period, commence with typhoid symptoms, and require a perfectly opposite system of treatment. Hence all histories of febrile diseases, made at different periods and at different places, present an unaccountable variety of character; and, therefore, in the treatment of this class of diseases, all that we ought to attempt is to establish such *general* principles as shall be applicable to the different forms or types in which the fever may present itself; and here, again, we must trust to a judicious discrimination, and an experienced eye, for detecting the peculiarities of each case—as even in the same family, and under similar circumstances, instances will occur of a fever assuming an inflammatory character in one of its members, and in another a typhoid form.

The practice of avoiding the use of all depletive means in the treatment of fevers has been, until late years, very generally followed. Dr. Hamilton first pointed out the essential benefit to be derived from the free use of *purgative* medicines; and our army and navy surgeons had many opportunities, during the last war, of establishing the advantages to be derived from a judicious employment of blood-letting, both general and local, in those fevers which, in different parts of the globe, had usually been considered as requiring an opposite system of treatment.

The objections to the use of blood-letting in fever were founded merely on hypotheses, and on the erroneous notion that such diseases had to run through a certain course—to have a certain duration which could not be shortened—whence it became necessary to husband the resources of the system, in place of abstracting blood, or of adopting any mode of treatment which would cause a further exhaustion of the vital powers.

I had an opportunity of witnessing the fallacy of this doctrine in the case of a youth who was attacked with fever, and whom I accidentally saw just when he was brought from school, at the commencement of the disease.

He complained of a violent headache, had a flushed countenance, a typhoid tongue, a hot and dry skin, and a rapid pulse. I immediately bled him at the arm, when in the supine posture, until he fainted, ordering him a dose of James's powder and calomel every four hours alternately with a purgative. The physician who attended the family was afterwards sent for, and in a few hours he visited the patient. When he heard the history of the case, and observed the character of the tongue, he expressed his decided opinion that the depletive system of treatment would be injurious—that the patient had all the symptoms of typhus fever, which would endure twenty-one days, and that it would be followed by such a train of symptoms of exhaustion and debility, that, in place of blood-letting, the very opposite system of treatment ought to have been pursued. Contrary, however, to this prediction, the bleeding completely and permanently relieved the head; the skin

and alimentary canal were powerfully operated upon by the antimony and calomel, and so early as the ninth day the febrile symptoms abated.

There are many cases of fever in which general blood-letting is quite inadmissible, but wherein the application of a very few *leeches* is of the greatest utility. Such local depletion is advisable in cases of fever whenever there is any fixed local pain or congestion in any particular region—such as that of the head, chest, or abdomen. Whilst the general assemblage of symptoms do not point out the necessity, or, indeed, where they rather indicate the impropriety of *general* blood-letting, the application of a few leeches is generally, under such circumstances, quite sufficient to afford relief; and in adopting this treatment we are strictly imitating the mode which nature herself, in similar cases, adopts: for whilst she endeavours, by acting on the skin and alimentary canal, to relieve the symptoms of the first stage of fever, she subdues congestion or chronic inflammation of particular organs by a “spontaneous hemorrhage.”

The abstraction of blood, whether generally or locally, will be found in some cases a powerful remedy in *eruptive fevers*; and, as I have noticed in regard to fevers, it is not many years since blood-letting was first employed in the treatment of exanthematous diseases—from an impression that they also had to “run their course,” and that from the great exhaustion created by the disease, all the resources and powers of the system were required to support the patient, in place of rendering any further debility by depletion admissible.

Numerous facts have proved the fallacy, indeed the absurdity, of such a doctrine. There is no febrile disease, even of a specific character, such as small-pox, measles, scarlet fever, or whooping-cough, wherein blood-letting may not be advantageously employed under certain circumstances, particularly during the early stages of these maladies.

When noticing the injurious effects of blood-letting in *specific* diseases, I observed, that in syphilis and gout, besides the specific inflammation which forms the essential character of those complaints, there are often symptoms of another character—symptoms which arise from an *idiopathic* or common inflammation being present at the same time, and which inflammation is to be subdued by blood-letting. Now this observation is applicable to the phenomena observed in the “eruptive fevers,” and you will find that these diseases are sometimes accompanied by inflammatory symptoms, or with an idiopathic inflammation in a particular organ, which requires a separate system of treatment.

Blood-letting may also be resorted to in the early stages of *scarlet fever*, particularly when there is a determination of blood to any particular part, as the chest or head. Sometimes the inflammation of the throat, the characteristic feature in this disease, is so severe, that much relief is obtained by local bleeding, more or less

profuse ; but when any of the vital organs are affected, then venesection is preferable.

There is in this disease, as in erysipelas and other of the exanthemata, a notion with many that patients cannot endure a depletive system, or that such is unnecessary for their treatment. It cannot be denied that, like most other diseases, the scarlet fever in many cases passes through a very mild course, having scarcely a symptom requiring any particular treatment ; and there are other examples wherein the pulse, from the very commencement of the disease, is feeble, and the powers of life sink rapidly. We ought also to be aware, that cases of scarlatina do occur, where severe inflammatory symptoms come on, and of that degree wherein blood-letting is highly to be recommended. The additional vigour which the pulse acquires whilst the blood flows from the vein, will be an unerring guide for estimating the propriety of the measure, and the extent to which it should be carried.

A gentleman between fifty and sixty years of age was seized with shivering, succeeded by hot skin and other febrile symptoms. On the evening of the same day I visited him. His mind was restless and a good deal excited ; his skin hot and burning, his tongue white and loaded, the pulse frequent, and he had a tumultuous action of the heart. His countenance was flushed, the tint of which, along with a slight redness of his throat, made me suspicious that he had an attack of scarlet fever. He was immediately bled from the arm ; at first the pulse rose, and a considerable quantity of blood was abstracted before he became faint. Calomel, combined with antimony, and a purgative medicine, were then given alternately every two hours. Next morning the febrile symptoms were much subdued, but his throat had become very painful. Twenty-four leeches were now applied to the external fauces, with relief. In a few hours afterwards he was again bled at the arm, a slight return of headache, with fever, having come on. These symptoms never returned ; a fetid slough separated from the tonsils, and he afterwards recovered daily, and was very rapidly restored to health.

From the treatment which was adopted in this case, and its decided success, doubts were entertained of its having been really a case of scarlet fever ; but those doubts vanished when that disease made its appearance a few days afterwards in two children of his family.

The benefit of blood-letting, when the febrile symptoms accompanying *small-pox* are severe, or when inflammation affects any particular organ, is equally great. An intelligent army-surgeon made it a general rule, from which he experienced the greatest benefit, always to bleed soldiers on the commencement of the fever preceding the eruption.

A lady was attacked with severe febrile symptoms, for which she was profusely bled, and with great relief. On the following morning it appeared that she was afflicted with small-pox, and her medical attendant at first expressed his regret at having had

recourse to venesection. Such, however, was the mild progress of the disease, when viewed in comparison with that of many who were affected in the same town, that all were convinced the blood-letting had been highly beneficial, and had mitigated the febrile symptoms.

When considering the effects of local bleeding, I remarked that its benefits were exemplified very strikingly in cases of *erysipelas*, from the relief derived by the profuse hemorrhage which followed incisions made into the inflamed integuments. Such a practice will, however, I am persuaded, be seldom found necessary, if blood-letting be had recourse to in the early stage of that disease.

From a supposed *typhoid* character of *erysipelas*, it was, and with some still is, the general practice never to deplete or pursue an antiphlogistic plan of treatment; and I well remember visiting a lady who was suffering from a very severe attack of *erysipelas* in the face, and finding at her bed-side a large tumbler of wine and water, and that she was taking as much bark as her stomach could receive. By bleeding her freely at the arm, repeating the operation three times successively at short intervals, along with purging and antimonial medicines, she rapidly recovered; and another medical attendant expressed his surprise at the treatment I had employed, remarking that during a long attendance at a public hospital, he had never known blood-letting employed in *erysipelas*—adding, that nearly all the cases which he had seen of that disease affecting the face and head had terminated fatally.

In *erysipelas* there is usually a peculiar feeling in the pulse, which is apt to dissuade the practitioner from the employment of blood-letting. The pulse, though small, will however be found more or less *incompressible*, and whilst blood is flowing from a vein it acquires more and more volume, and often a very considerable quantity is abstracted before a fainting state supervenes.

Whenever the abstraction of blood is necessary in the treatment of *erysipelas*, *general* is to be preferred to *local* blood-letting, and chiefly for this reason—that the leech-bites often act, in such states of the system, as additional exciting causes, and therefore the local irritation created by them ought to be avoided, which can be done by adopting venesection. Besides, we seldom see *erysipelas* so severe as to require blood-letting without there being more or less disturbance of the whole system, and this is a further reason for preferring general to local depletion in the treatment of this disease.

In the treatment of all *inflammations* (the “*phlegmasiæ*” of Cullen) the abstraction of blood is a most powerful curative means, and, as I have already noticed when considering the subject of general blood-letting, whenever an organ is inflamed, and that inflammation is accompanied by febrile excitement, the abstraction of blood should be unhesitatingly employed. Under such circumstances, the blood should be abstracted from the arm whilst the patient is in the recumbent position, until syncope be produced, and the operation should be repeated whenever the pulse rises, and until the febrile symptoms are subdued.

Even after the feverish symptoms have been mitigated, there may still exist some determination to a particular organ, such as the head, chest, or abdomen, in which case local bleeding should be resorted to. By general blood-letting the increased action of the whole vascular system is diminished, but local bleedings are subsequently necessary to check the undue action of the capillaries of the inflamed part. It is always of importance, however, in the treatment of inflammation, that the general should precede the local bleeding. Every day we meet with cases wherein local bleeding has been employed without benefit, and in which, when general bleeding is afterwards adopted, the symptoms at once subside.

“A young officer suffered severely from pain in the head, along with ophthalmia and general fever. He was repeatedly bled by leeches, and the temporal artery was opened without affording him any relief. A vein in the arm was now opened, the effect of which was to produce not only an immediate removal of the uneasy feelings in the head, but to check the future progress of all inflammatory symptoms.”

There are many sub-acute inflammatory affections which will be found to yield to a similar system of treatment. Indeed, there appears to be produced by small and frequent bleedings, in such cases, an effect very different to that arising from larger depletions; and in adopting the practice there is little difficulty in regulating either the number of leeches necessary to be applied, or the frequency of their application. At first the bites may bleed very profusely, whilst their future applications will yield comparatively little blood, but their use should be repeated as long as the blood they draw affords decided relief.

I need scarcely remark, that whilst this system of local bleeding is pursued, it is not meant that the use of other auxiliary remedies should be precluded. On the contrary, it is always to be remembered that blood-letting is here supposed to be employed in conjunction with other curative means, that state of the system requiring the abstraction of blood being always accompanied by more or less disturbance of some of the other functions.

When inflammation assumes a chronic, or passive, or *sub-acute* form, the abstraction of blood is a remedy as useful as when the disease is in its acute stage. The above terms have each been employed to denote the state of an inflamed part wherein there is no longer any febrile excitement—no disturbance in the action of the heart, but where there is a change merely in the functions of the capillary system of a particular organ; and hence, as I have already remarked, it is in this stage of inflammation that local is usually preferable to general blood-letting.

In all such cases I have been in the habit of recommending the frequent repetition of *small* bleedings in place of one or more large depletions, and I have often been both surprised and gratified with the benefit of this practice. A person afflicted with some chronic inflammation, and whose strength cannot support any thing like a

sudden depletive system, will often gain vigour and health by the daily use of two or three leeches in the vicinity of a diseased part.

A young lady, of feeble constitution, had one of the glands in the neck rapidly enlarged. It was tender to the touch, but she had no febrile symptoms. I advised her to apply leeches daily, beginning with four, and diminishing the number as the swelling abated. This treatment, along with fomentations and poultices, greatly relieved her, and the swelling gradually diminished. But the leeches were employed no less than seventeen times before all tenderness went off; and what surprised her relatives was, that at the termination of this treatment her general health and strength had improved, and she had regained flesh.

A girl, about six years of age, had a scrofulous affection of the second joint of the thumb, a considerable enlargement of the soft parts having taken place, with slight discolouration and tenderness. Two leeches were daily applied for one week—one each day—during the subsequent week, and one every second or third day afterwards, until the swelling completely vanished; after which treatment her general health was greatly improved.

This mode of treating sub-acute or chronic inflammation is applicable to all organs; and though in general medical men are aware of its importance in inflammatory diseases of the vital organs, there are many similar affections of parts less important in the animal economy to which a depletive system of treatment, though not generally employed, will be found equally beneficial.

Ophthalmia, also, presents itself in numerous forms wherein this system of small but frequently repeated local depletions are very beneficial; and I might quote numerous cases to show how inflammations of the eye, that have existed long, and for which a variety of local as well as general remedies had been employed without success, were afterwards completely subdued by omitting all local applications, and merely applying daily one or two leeches behind the ears alternately, as long as the symptoms continued to yield to the treatment.

A girl six years of age had the cornea of both eyes so dim that vision was nearly destroyed, and there was a pale redness of the whole sclerotica, accompanied by an intolerance of light. She was sallow, feeble, and emaciated, the circulation hurried, and the digestive organs considerably disordered. I recommended two leeches to be applied behind one ear every day—one grain of calomel to be given every morning, and, after a week, every second morning for a few times. Some of the liquor of potass combined with rhubarb was given twice a day. Such was the manifest benefit derived from the leeches in this patient, that they were daily continued for two months, and afterwards one was applied daily for another month. The result of this treatment was, that a perceptible amendment continued to take place daily in her condition. The redness of the eyes gradually subsided, the corneæ regained their transparence, the digestive organs improved, and she accumulated health and strength, so that at the end of the

third month she required no further treatment, and no local remedy was ever applied to the eyes.

The patient was brought to me upwards of a year after this illness with a very extensive inflammatory swelling of the soft parts covering one of the tibiæ. I pursued the same system of treatment, and it was not until several weeks had elapsed, and that besides the use of calomel she had applied leeches daily, that the swelling was subdued.

There are many other organs, particularly the mamma and genito-urinary organs of both sexes, liable to chronic inflammations, which may be subdued by this system of small but frequent local depletions.

The observations I have hitherto made on the curative effects of blood-letting apply chiefly to the employment of it in the treatment of diseases of an inflammatory character. But there is another class of cases wherein the abstraction of blood is an equally powerful remedy, and in which the propriety and extent of the depletion are indicated by a different assemblage of symptoms. I allude to *congestion*, or *plethora*, of a particular organ or region of the body.

This state of congestion, as I have already endeavoured to point out, is very different from inflammation; in congestion the vascular system, more particularly the veins of the affected part, being preternaturally distended with blood, whilst in an organ which is inflamed there is a change in the condition of the arterial capillaries. A mere congestion of blood can be artificially produced in the arm by tying a ligature around it, and thus distending the veins. There is no alteration in structure thus produced, but merely an increase in the quantity of blood, which, if we could suppose the limb was removed from the body and immersed in water, would be washed away. Congestion, I have also observed, ought to be discriminated from an irregular distribution of blood, examples of which we have in flushings of the cheek—the effects of friction on the skin—the presence of a mote in the eye—and in many of those headaches which are usually called “nervous.” Now, in cases of congestion, bleeding should not be generally carried to the same extent as in inflammations, and the blood is to be removed either from the vessels immediately connected with the diseased organ, or remote from it. Leeches on the frontal vessels, or on the ethmoidal vessels ramified on the septum of the nose, or applied behind the ears—for the reasons already explained—or cupping the nape of the neck, are the modes best adapted for relieving congestion within the head.

Leeches or cupping may, in like manner, be employed on the parietes of the thorax and abdomen, in congestion of the viscera; and leeches on the verge of the anus are particularly beneficial in abdominal congestions, from the circumstance formerly stated of the connection between the hemorrhoidal veins and the portal system.

Whatever theory or explanation may be given, I have already

observed, there cannot be a doubt of the fact that many diseases of the thoracic, chylopoietic, and uterine systems, are essentially relieved by the application of leeches to the feet; and this practice of removing blood from a distant part is equally remarkable in disorders of the head—these being often relieved by the escape of even a few drops of blood from the hemorrhoidal vessels.

But there are cases of congestion in which blood-letting must be carried to a great extent, more particularly where the brain or chest is the seat of the disease—life then being often in more or less danger, and the only mode of preserving it being the abstraction of such a quantity of blood as to produce syncope.

A gentleman, about sixty years of age, and of a sanguineous temperament, was suddenly seized with giddiness, at which he was alarmed, and I visited him immediately. There was so little deviation from the natural state of his pulse, that I even hesitated whether to take some blood by venesection or by cupping. The former mode being determined on, he was placed in a reclining posture on a sofa, a wash-hand basin put underneath his arm, into which the blood flowed freely; his pulse soon began to rise, and an incompressible feeling remained in it until a large quantity of blood was abstracted; at last it began to sink, but not until such a quantity of blood had escaped as I would not have ventured to take away, had not the character of the pulse and the plethoric appearance of the patient given me confidence. Except purgatives given sufficiently freely to open the bowels, he took no other medicines. On the following day he felt so little the effect of the depletion that he dined at a club, and on the following evening he was so well as to be able to attend his duty in the house of commons. The blood he lost was accurately weighed, and amounted to no less than fifty-two ounces—a quantity many practitioners may have removed in cases of great urgency; yet, what was remarkable in this case was, that none of those debilitating effects were produced which might reasonably have been anticipated from so large a depletion; and, what was most satisfactory, this patient continued several years after in most perfect health.

I have already remarked, when speaking of the *injurious* effects of blood-letting in paralytic affections arising from effusion of blood in the brain, that blood-letting cannot be carried far in proportion to the severity of the symptoms; for, on the contrary, in proportion as the shock is severe, a lesser quantity of blood only can be removed with safety. That is, a person who has an attack of palsy, destroying at once the power of the upper and lower extremities of one side, and also that of speech, cannot spare so much blood as the same person could have done, and ought to have lost, *previous* to the attack, had its approach been observed.

In proportion to the severity of the injury sustained by the brain, so does the system suffer from the shock; and hence, in the degree in which the powers of life are diminished, so will the system be the less able to support the abstraction of a large quantity of blood.

A man, forty-five years of age, whose habits were extremely

dissipated, and who drank frequently to intoxication, lost suddenly the power of speech, and the whole of his left side became motionless. In this state I opened a vein in his arm, and after a very few ounces of blood escaped his pulse sank; and on repeating the operation a few hours afterwards, his pulse again faded after a very small quantity was removed. Having freely evacuated the bowels, and taking calomel every few hours, the mercury at last affected his gums, and a sharp ptyalism supervened, which was followed by a gradual restoration of the powers of speech, as well as of the use of the paralysed extremities. A seton was afterwards introduced into the nape of the neck; and I saw this patient upwards of four years after this attack, having recovered his speech and that of the use of his side so perfectly as to enable him to be employed in his business as a watch-maker.

When, on the other hand, the approach of a paralytic attack is foreseen, or even after the symptoms have slightly commenced, it is astonishing to what an extent blood-letting must sometimes be carried, in order to check the progress of the malady.

A patient called on me, complaining of a numbness in the muscles of the right arm, and a tingling sensation in the fingers, which symptoms he had first perceived on shaving himself that morning. His pulse did not appear much changed, but it was not easily compressed. The action of the heart was unnaturally vigorous; his countenance had a tumid appearance and a leaden colour, but he had no uneasy feelings in his head, though he had walked a considerable distance to my house. I advised him to return home in a coach, and to be immediately bled in the horizontal posture. Forty-four ounces of blood were abstracted before syncope came on. The pulse soon began to rise, and he was largely bled a second time twelve hours after the first bleeding, and the blood was again allowed to flow until he fainted. In forty-eight hours after the first bleeding the action of the heart and arteries had greatly increased, accompanied with feelings of stupor and giddiness, notwithstanding his bowels had been very freely evacuated; he was therefore again bled at the arm till syncope came on—having lost in the three bleedings no less than a hundred and six ounces of blood! A few doses of calomel, which had been given along with strong purgatives, in a few days affected his gums, and created a good deal of mercurial fever; but, after this went off, his strength rapidly recovered, and in a few weeks all numbness left his arm—its motions being at the same time so completely restored that he could use a pen as well as previous to his illness.

Blood-letting may often be most successfully employed in restoring the *menstrual flux*, when that periodical discharge has been suppressed. For this purpose the bleeding should be employed the day previous to its approach—the abstraction of a small quantity of blood at that period relieving the system of more or less disturbance, and thus permitting the natural functions to be more perfectly performed. In such cases the application of leeches to the feet is the best mode of abstracting the blood.

Blood-letting is also not less useful in regulating the quantity and quality of the menstrual flux, and in alleviating the pain and distressing symptoms which often accompany a diminished menstruation.

"An unmarried lady, about twenty-two years of age, had for several years suffered from painful menstruation. I advised her to apply from two to four leeches every night for three nights previous to the accession of the menstrual discharge, and to use at the same time the pediluvium. This plan of treatment had the effect of diminishing the pain accompanying each succeeding period; and after the fourth month the menstrual flux took place without pain, since which time the period has been quite natural and free from pain, and her general health so much improved that she has since enjoyed better health than she had previously for several years."

The abstraction of a quantity of blood ought to be had recourse to, before and after most surgical operations. When operations prove unsuccessful, I have always remarked that, in by far the majority of cases, the patients die of inflammation of some internal organ. Bleeding therefore will, when early resorted to and carried to a proper extent, have the effect of always checking any inflammatory disposition, and it will also be the means of securing the healing of the wound by adhesion, when such is desirable.

The modes of abstracting blood for such purposes consist, either in taking away a quantity before the operation—in allowing the divided vessels to bleed during the operation—or in employing venesection after the operation. Now all these *three* methods ought to be adopted separately or conjointly in particular cases.

When an operation is to be performed on a plethoric subject, and an operation where little blood can be lost—more particularly in operations for *cataract*, in which no blood-vessel is ever divided—then it is very judicious to bleed the patient on the morning of the operation; any future bleeding, of course, depending on the subsequent symptoms.

When there is any chance of dividing, during an operation, blood-vessels of such a size as to admit of the wished-for quantity of blood to flow from the wound, then I have usually been in the habit of *not* bleeding the patient previous to the operation, but of allowing such a quantity to escape from the divided vessels as appeared expedient.

Advantages are in most cases derived from a plentiful sanguineous depletion during operations; a complete check being thus offered to the accession of the febrile symptoms, and to the danger of inflammation in the wounded parts. Strongly am I impressed with the utility of this practice, from having generally remarked that all those patients who have lost much blood during operations from the wound, seldom require any subsequent bleeding, and the wounds usually heal by adhesion.

When, under any circumstances—whether the patient have lost blood previous to or during an operation—febrile symptoms do

supervene, attended by more or less *local* pain, then blood should be freely abstracted, and be repeated until such symptoms are completely subdued.

If a wound be not forcibly closed and tightly bandaged, and vessels of any considerable size have not been tied with ligatures, then, whenever the slightest inflammatory disposition supervenes, a hemorrhagic effort takes place, and there ensues a bleeding from the wound, which never fails to relieve the inflammatory state of the parts. From observing this phenomenon, I was led not to dress wounds and close them up in the usual manner; and, whenever any bleeding from them did take place, never to use any local means to suppress it, but to leave the vessels as it were unmolested, to pour out such a quantity of blood as may be requisite to relieve the inflammatory state of the wounded parts. This system of management generally secures the closure of the greater portion of a wound by adhesion, when its edges are in contact, and when the wound is not of such a nature as to render it impossible. As I have already remarked, it so moderates the subsequent local inflammation, that the suppurative process is always diminished both in severity and in extent. The same general remarks apply to wounds accidentally inflicted, and to all kinds of injuries. Some observations on these points I have in part anticipated.

It is usually considered that when an inflamed part has advanced to suppuration, the future treatment ought to be altogether directed to the healing of the abscess, for which poultices and free incisions are frequently employed.

It is true that usually, when the contents of an abscess are discharged, the accompanying pain as well as inflammation abates, but this is not the case on all occasions; and it is in such cases, and under such circumstances, that I have found local blood-letting essentially useful.

In most cases of cellular as well as glandular inflammation, the purulent fluid which is collected, and forms the abscess, does not make its escape if left to nature until all the circumjacent swelling and inflammation have abated. But if the matter has been artificially evacuated, and the surrounding swelling and inflammation are unsubdued, then the daily application of leeches to the inflamed integuments will be found most useful; and whilst the inflammatory symptoms are thus subdued, the suppurative process will be observed in like proportions to diminish.

A youth, when bathing, trod upon a broken bottle, which cut the sole of the foot deeply. I saw him about four months after the accident. There were considerable tumefaction and tenderness of the soft parts around the wound; almost the whole extent of the cut remained open, and there was a copious puriform discharge, which appeared to ooze from a cavity corresponding in extent with the hardened and swollen soft parts. Four leeches were daily applied, and, with a common poultice and perfect rest, in eight days the wound was closed; the repetition of the leech a few

times, at more distant intervals, completely removed all swelling and tenderness.

When a succession of abscesses has formed in any part, and when sinuses have been extending, as it were, step by step, the inflammation of the surrounding soft parts can in such cases be completely checked by local bleeding; and in this manner have I often been able, by the almost daily application of leeches, completely to conquer the inflammation, and thus check the formation of new abscesses and the extension of sinuses. I have long thought that it is by the bleeding from the incision made for laying open sinuses that the good effects of that practice are chiefly derived.

It is surprising to what an extent bleeding can be employed, or rather how often a small number of leeches can in such patients be applied with the most decided benefit; and in place of patients being reduced by such a practice, the effect of the depletion, by alleviating disease, seldom fails to improve the general health.

The inflammation which is caused by a *burn* or scald, may be alleviated by the same plan of treatment as is so successfully resorted to for the relief of inflammation caused by any other injury.

Whilst a youth about ten years of age was amusing himself with gunpowder, a large quantity ignited and severely scorched his face. When I saw him a few hours after the accident, I found the whole face much swelled and scorched, and the eyes closed from the swollen state of the palpebræ; he had great pain, and the pulse though not frequent was firm and unyielding. He was immediately bled at the arm until he became faint, which had the effect of alleviating the pain and diminishing the swelling. Leeches were applied behind each ear alternately whenever pain returned, and these were repeated morning and evening until the inflammation of the integuments was completely subdued—and whilst this treatment was employed the bowels were at the same time fully evacuated, the patient kept on the antiphlogistic regimen, and the common liniment of lime-water and linseed-oil applied to the burn.

Whenever an ulcer, whether it be the consequence of a wound, or be caused by some specific virus, such as that of syphilis, assumes a disposition to slough, it has been usual to employ stimulants, both as internal and as external remedies. Now there are many cases of this description wherein an opposite or depletive system of treatment may be advantageously employed. I first observed the extraordinary effect of depletion in a case of sloughing chancre, from which a profuse hemorrhage took place.

Early one morning I was sent for to visit a gentleman who had lost a great quantity of blood during the night from a sloughing chancre, which had extended into one of the corpora cavernosa. To arrest this hemorrhage I immediately bled him at the arm till he fainted; after which the hemorrhage from the sore did not return, but a change took place in its character, which I little

anticipated. The sloughing process was completely checked, the slough separated, and the wound granulated and cicatrised in the most healthy manner.

Reflecting on the effect of depletion in such cases, we find incontrovertible proof that sloughing sores are at least not always to be attributed to a diminished vigour or typhoid state of the system, nor to an increased virulence of the specific virus, but to an excess of inflammation arising from the peculiar state of the system or constitution of the patient. This inflammatory state is to be subdued by an antiphlogistic system of treatment, independent of any subsequent treatment which may be necessary for the cure of the specific disease. Hence, as is well known, in cases where the syphilitic sore shows a disposition to inflame much, or to slough, the exhibition of mercury is prejudicial, and never ought to be administered until all local as well as constitutional excitement be subdued. In the class of cases to which I allude, besides blood-letting, opium ought to be freely given, and one or more grains may be taken every few hours, until the symptoms be relieved.

The same observations, which I have now made on the curative effects of blood-letting in sloughing sores, apply to those wounds where it is not unusual to see the soft parts slough or mortify from the violence of the inflammation consequent on the injury. In such cases there is a period when the best effects will result from local or general blood-letting, and that too where from the sloughing appearance of the wound depletion is not commonly employed.

This useful effect of abstracting blood has been established in the most satisfactory manner in the treatment of *hospital gangrene* by Dr. Boggie, an intelligent army surgeon, who, in the military hospitals during the Spanish campaigns, met with many examples of that formidable disease for which he found venesection the most powerful remedy.

A lady about seventy years of age and of a corpulent form, received a sharp blow on the end of the tibia. Ten days after the injury, when I was consulted, a portion of the integuments which had been bruised had become of a dark livid colour, and an erysipelatous inflammation had extended over a considerable portion of the adjacent skin. She was restless, the skin hot, the tongue white and loaded, and her pulse small, contracted, and frequent; with a view to arrest the gangrenous character of the integuments, she had been ordered wine-bark and a generous diet. I advised her to be bled at the arm, and she lost about eighteen ounces of blood when in the horizontal posture, before she became faint. The bowels were freely opened, a strict antiphlogistic treatment was pursued, and on the following day the inflammatory symptoms of the injured integuments were greatly subdued. One grain of calomel and antimonial powder was given every few hours until the febrile symptoms subsided, and leeches were daily applied to the limb, on the parts adjacent to those which were inflamed, until the

discolouration and redness disappeared, and in a few days she got quite well.

This plan of treatment is equally applicable to the inflamed integuments around an ulcer. I am constantly in the habit of applying repeatedly a small number of leeches, and with the best effects, in the immediate vicinity of ulcerated surfaces, and where general bleeding is not indicated.

I may, however, here mention, that there are many ulcers of the lower limb, which, though not accompanied by those febrile symptoms which point out the propriety of general blood-letting, are manifestly benefited by the abstraction of a moderate quantity of blood by venesection. I was first led to adopt this practice by having remarked a decided relief in some ulcers from the rupture of a varicose vein accompanying them, and from the benefit derived by bleeding animals afflicted with any ulceration, or "humour," as it is commonly designated; and also, from such ulcers being usually the effect of some constitutional disturbances, which would have been relieved by venesection.

By adopting the practice of bleeding patients with ulcerated legs, whenever they were admitted into the hospital, and pursuing an antiphlogistic regimen, with no other local treatment than a cold-water poultice, and the horizontal posture, I have been much surprised at the rapidity of their amendment; especially when compared with that resulting from the tedious and troublesome application of plasters and bandages.

A young man had the posterior part of the skin around the leg at the bend of the foot discoloured, many parts of it were excoriated, and the veins were very turgid. This commenced three years ago in a small spot which gradually increased and became the source of great irritation and itching. Four leeches were applied to the skin contiguous to the diseased part, and he took calomel and colocynt morning and evening; the redness and irritation was much relieved the following day. Leeches were again applied, and on the fourth day the inflammation was much subdued—itching gone—excoriations dried up—and the skin desquamating—some uneasy feelings, also, particularly a dulness and muddiness within the head, accompanied with restlessness, were relieved.

Hitherto great attention has been directed to the useful and curative effects of blood-letting, but it is natural that we should enquire what are the consequences when such bleeding is not resorted to under all the various circumstances which I have pointed out as indicating the propriety of such treatment. We daily meet with opportunities of noticing the changes of structure which take place in every organ of the body, in consequence of inflammations being allowed to advance—inflammations which, had they been early detected and treated by depletion, might have, in all probability, been subdued, whilst any permanent change of structure of the inflamed part would have been completely arrested.

There are, no doubt, many examples of inflammatory diseases,

which have been relieved without blood-letting, some of them, when left to nature, running through a particular course, and leaving the affected organ unchanged; and there are others which are checked by the exhibition of those internal and other remedies which influence and subdue the action of the arterial system. But there are many affections where the propriety of blood-letting has been indicated, though not adopted; and where, in consequence, has been laid the foundation of some substantial structural disease. I am indeed convinced, that in almost all those diseases which are, at their commencement, attended by a disturbed action of the vascular system, a much more rapid and efficient abatement of the symptoms would result from venesection, pursued even to a very moderate extent, and the whole system would suffer a much less subsequent debility, than by a free use of purgatives and diaphoretics, and a long continued perseverance in such antiphlogistic treatment.

There is a curious effect of bleeding which was remarked to me, by Professor Russell, of Edinburgh, and occurred in the following instance.

A lady of a plethoric habit was very liable to sudden and severe congestions of blood in different parts of the body, most frequently in the lungs; to relieve which the abstraction of a quantity of blood was indispensable. The moment a vein was opened she not only began to experience relief, but felt an instantaneous exhilaration of spirits, like one intoxicated. Mr. Russell repeatedly witnessed this very singular effect in this patient, and a medical friend of his observed a result somewhat similar in another person.

Bleeding, too, not only increases the action of the bowels, but it promotes the mercurial action. Dr. Fordyce used to say that in some cases of constipated bowels, we ought to open them with a lancet; and the late Mr. Gibson of Manchester was in the habit of bleeding largely when he was anxious to influence the system rapidly with mercury, and I have repeatedly observed how quickly affected was the system of those who at the same time were bled.

It is not an unusual, though it is a very erroneous, notion, that if a person repeatedly loses blood, it becomes a *habit*, and he requires ever afterwards to be occasionally bled. But surely if a patient be affected with an inflammatory disease, his sufferings should be alleviated by blood-letting, when it is perhaps the only certain remedy.

With some people it is a practice to lose blood *periodically*, generally in the spring and autumn, and here, indeed, it is by no means improbable, that if these periodical bleedings were in such persons neglected, some injurious consequences might follow.

In concluding these observations on the subject of blood-letting, I have endeavoured not to omit the consideration of any very important point, whilst I have avoided entering on speculative discussions. The materials of these discourses I have been em-

ployed in collecting and revising many years, and during that time have embraced every opportunity of applying to the doctrines here inculcated the test of experience—of communicating them to professional men—and of comparing my opinion with those founded on the experience of others. Almost every observation which has been here made on the curative effect of blood-letting, and the rules given for employing it, accord, I am convinced, with the results of the generality of practical men. In this, however, I must be understood as alluding to those only who themselves have been in the habit of performing the operations necessary for abstracting blood—for I contend that it is perfectly impossible for such persons as do not use their own judgment in regulating the extent of the bleeding by the effects produced whilst the blood is flowing from the vein—it is impossible for them to form correct and just notions on the use of blood-letting, and he who is in the habit of *prescribing* the abstraction of particular quantities of blood, in like manner as he may be accustomed to write the prescription for a dose of medicine, must possess a very incompetent knowledge of all the advantages which are to be derived from the judicious employment of this most useful and no less powerful remedy.

THE END.

CONTENTS.

DISCOURSE I.

Of the Blood; its functions; its "living principles;" its morbid changes; its quantity in man; its sensible qualities—smell, taste, temperature—The coagulation of the blood; its phenomena—Utility of coagulation in stopping hemorrhage; in uniting divided parts; in the process of reparation; and in the cure of aneurisms—Deficiency of the coagulatory power in the blood; sometimes hereditary; fatal cases; treatment—Consistence of the blood—Component parts of the blood; serum; red globules; coagulated lymph—The buffy coat. 1

DISCOURSE II.

The utility of blood-letting—Difference in the effects of abstracting arterial and venous blood—Of a local abstraction of blood—Effects of incisions made in inflamed parts—Spontaneous bleeding from wounds—Local bleeding; when to be employed. 15

DISCOURSE III.

General blood-letting—Indications for employing it—Of the pulse—An incompressible pulse—Other changes in the pulse—Natural varieties of the pulse—Changes in the heart's action—The local pain—Importance of the first bleeding—Extent to which it ought to be carried—Effects of syncope—Quantity of blood to be abstracted. 24

DISCOURSE IV.

Quantity of blood to be abstracted, continued—How to be estimated—Syncope—How beneficial—Copious natural hemorrhages often not injurious—Blood-letting; when to be repeated—Differences in the condition of the blood. 34

DISCOURSE V.

Causes of failure in venesection; how to be remedied—Operation of venesection—Different methods of abstracting blood; when to be employed—Venesection—Cupping—Leeches—Scarification. 41

DISCOURSE VI.

Injurious effects of blood-letting—Immediately after injuries—During an apoplectic fit—In particular cases of inflammation—In irregular distributions of blood—In specific diseases. 51

DISCOURSE VII.

Jurative effects of abstracting blood in fevers—In eruptive fevers—In scarlet fever—Small-pox—Erysipelas—In acute inflammations—In sub-acute inflammations—In congestions—In wounds—In suppurated parts—In sloughing ulcers—In ulcers of the legs—Some anomalous effects of blood-letting—Conclusion. 57

ARTICLE I

SECTION 1

All legislative Powers herein granted shall be vested in a Congress of the United States, which shall consist of a Senate and House of Representatives.

SECTION 2

The House of Representatives shall be composed of Members chosen every second Year by the People of the several States, and the Electors in each State shall have the Qualifications requisite for Electors of the most numerous Branch of the State Legislature.

SECTION 3

The Senate shall be composed of two Senators from each State, chosen by the Legislature thereof, for six Years; and each Senator shall have the Qualifications requisite for Senators of the most numerous Branch of the State Legislature.

SECTION 4

The House of Representatives shall elect their Speaker and other Officers; and they shall choose at least one Member from each State.

SECTION 5

The Senate shall elect their President and other Officers; and they shall choose at least one Member from each State.

SECTION 6

The Senate shall have the sole Power to try all Cases impeached by the House of Representatives, and when sitting shall be sworn or affirmed.

SECTION 7

The House of Representatives shall have the sole Power of Impeachment.

STATE OF MEDICINE

IN

FRANCE, ENGLAND, AND GERMANY.

OBSERVATIONS

ON THE

COMPARATIVE STATE OF MEDICINE

IN

FRANCE, ENGLAND, AND GERMANY,

DURING A JOURNEY INTO THESE COUNTRIES IN THE YEAR 1835.

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TRANSLATED FROM THE GERMAN

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OF PHILADELPHIA.

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CONTENTS.

	PAGE
PREFACE.	15
CHAPTER I.	
Topography of Paris and London,	17
CHAPTER II.	
Doctrine of Inflammation in France and England,	31
CHAPTER III.	
French Medicine,	36
CHAPTER IV.	
English Medicine,	58
CHAPTER V.	
French Surgery and Ophthalmology,	78
CHAPTER VI.	
English Surgery and Ophthalmology,	92
CHAPTER VII.	
Changes in the Condition of Medicine in France,	103
CHAPTER VIII.	
Condition of Medicine in England, and its Reform,	105
CHAPTER IX.	
A Glance at Germany,	118
CHAPTER X.	
Some farther Comparisons,	125

1897-1898

Page	Topic
1	General
2	General
3	General
4	General
5	General
6	General
7	General
8	General
9	General
10	General
11	General
12	General
13	General
14	General
15	General
16	General
17	General
18	General
19	General
20	General
21	General
22	General
23	General
24	General
25	General
26	General
27	General
28	General
29	General
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90	General
91	General
92	General
93	General
94	General
95	General
96	General
97	General
98	General
99	General
100	General

PREFACE.

In the following work, founded on a residence of several months in Paris and London, a journey through England to Dublin, and a visit to the north of Germany in the year 1835, it is not my intention to present a complete account of the tour, or of the hospitals and other institutions of the cities visited. Enough of this kind of information is already to be found recorded by those who have preceded me: in the travels of Frank, for example, in 1805; of Andree, in 1810; of Haindorf, in 1815; of Wagner, in 1825; of Otto, in the same year; lastly and especially, of W. Horn, in 1832. Neither do I design to reproduce what may be found in more systematic treatises—as in Casper's "Characteristics of French Medicine," and "Contributions to Medical Statistics," which have appeared in 1822, 1825, and 1835; in Von Ammon's "Parallel of French and German Medicine," in 1823; in H. Kopp's "Medical Observations" for 1825; in Philip von Walther's "Remarks of a Traveller upon London;" in Graefe and Walther's Journal for 1832; in Dieffenbach's "Remarks in and upon Paris;" in Casper's weekly publication for 1835 and 1836. Nor, again, do I intend taking any notice of current medical intelligence, new remedies or instruments, remarkable cases, &c.; since, by means of translations, and of journals expressly devoted to that end, the reading community of Germany are constantly and promptly supplied with news of this description. My purpose is, besides presenting a few gleanings of recent facts of interest, to give such a compendious view of the state of national science in these different countries, as personal observation, combined with the publications of the day and with the history of the past, have enabled me to form. I have endeavoured to do this in such a manner, as not only to recount

single impressions made by particular objects, but to convey the combined effect of several—compounded, to use a professional simile, so as to produce a common result.

This work, therefore, is the product of my humble efforts to obtain a just notion of the state of medicine in the different countries I have visited; and my hope is, that it may afford some aid to future travellers, and contribute to a just estimate of the comparative condition of science in the countries alluded to. My views will be found to be based upon facts, and these not lightly gathered either from hearsay or from books. Perhaps I may be excused for alluding to the difficulty of the task, and for confessing that I throw this essay before the public with some timidity. To all those whose attentions and kind offices have aided me in accomplishing the objects of my journey, I take this opportunity of renewing my expressions of regard and gratitude.

I will only add that a second visit to London, during the month of May of the present year, has afforded me an opportunity of visiting some new objects of interest, and of correcting my impressions of those already observed.

Hanover, July, 1836.

STATE OF MEDICINE

IN

FRANCE, ENGLAND, &c.

CHAPTER I.

TOPOGRAPHY OF PARIS AND LONDON.

PARIS.—Quartier Latin—Ecole de médecine—Lectures and professors—Hospitals and hospices—Clinics—Students—Concours—Foreign physicians.

LONDON.—Hospital—Schools—Management of these—Teachers—Pupils—Regulations for the examinations of surgeons and general practitioners in England, and curriculum of the medical faculty at Edinburgh—Climate and mode of life—Traveling physicians.

PARIS.

Paris is, as is commonly said, all France. This accounts for the fact of its immense population. This centralisation of the whole country in the capital is true also of medicine. Strasburg and Montpellier are the other distinguished medical schools, but the rivalry between the latter and Paris has long since ceased. The capital has the advantage both in point of resources and of activity.

Paris is divided from east to west by the river Seine. On the north side lie the theatres, the boulevards, the Louvre, the Tuilleries, the Champs Elysées, the Palais Royal. In the midst of the southern half is situated an old, somewhat narrow district, which, as being the resort of persons pursuing learned occupations, has long been styled "Pais," or "Quartier Latin." Here is the University of Paris, here are the Sorbonne, the Ecole de Droit, the Ecole Polytechnique, most of the "Colleges," and the Ecole de Médecine. On the left side is the still beautiful Quartier St. Germain; on the right is a lively but dirty district of mechanics and tradesmen; on the south is the Luxembourg, with its single large garden; and under the ground run the old catacombs, labyrinthic passages formed by nature, now filled with skulls and bones.

The school of medicine is in the rue de l'Ecole de Médecine, and in this street are also the Ecole Pratique, and the Hôpital de l'Ecole. Here are found medical booksellers, instrument makers, skeleton makers, and a medical reading room. The hospitals, however, excepting that just named, are for the most part at a distance and far apart.

The faculty of medicine of Paris consists of a dean (now Orfila) and twenty-five professors. The number of agrégés is twenty-four; that of the students in 1836 was two thousand.

The school of medicine is a large building, containing a museum, a library, and a lecture room, capable of containing more than one thousand five hundred persons, and soon to be enlarged. Each professor lectures from twice to three times a week, and receives an income of ten thousand francs. The year is divided into two semesters. No private individual can teach or lecture without permission, which, however, is easily granted. The number of private courses is over sixty.

The lectures and professors are:—

Anatomy, Cruveilhier, (Physician to Salpêtrière, now Professor of Pathological Anatomy); *Physiology*, Bérard; *Medical Chemistry*, Orfila; *Medical Physics*, Pelletan; *Botany*, Richard; *Pharmacy*, Déyeux; *Hygiene*, Desgenettes; *Practical Medicine*, Andral (Physician to la Charité), Duméril; *Surgery*, Marjolin (Hôpital Beaujon), Gerdy (Hôpital St. Louis); *Operations and Bandages*, Richerand (Hôpital St. Louis); *Pathology and Therapeutics*, Broussais (of Vâl de Grâce Military Hospital); *Legal Medicine*, Adelon; *Obstetrics*, Moreau (Maternité Hospital); *Medical Clinics*, Chomel (Hôtel-Dieu), Rostan (Hôpital de l'Ecole), Fouquier (Charité), Bouillaud (Charité); *Surgical Clinics*, Jules Cloquet (Hôpital de l'Ecole), Velpeau (Charité), Roux (Hôtel-Dieu), Sanson (Hôtel-Dieu); *Obstetric Clinics*, Paul Dubois (Hôpital de l'Ecole).

The lectures commence at 10 o'clock, and continue in the same lecture room in regular succession till 5. Strangers are admitted gratuitously and without ticket.

With the school are connected two additional structures—one, the Ecole Pratique, situated opposite in the same street, containing several small lecture rooms, in which private courses are given, and four dissecting rooms; the other is Clamart, near the Jardin des Plantes, intended for dissection merely, consisting of four large halls, in each of which are about twelve tables, and which together accommodate two hundred and fifty students. Every one can take part in the dissection, but each subject supplies five students, and costs about six francs. All unclaimed bodies are brought out of the hospitals to one of the two places.

The hospitals are:—

1. Hôtel-Dieu, 1000 beds (Place Notre Dame). Here are received, as in the other hospitals, with the exception of the five to be last named, all the sick, excepting the insane, children, incurable, syphilitic, pregnant, and those suffering from chronic disease.
2. Hôpital de la Pitié, (Rue Copeau,) 600 beds.

3. Hôpital de la Charité, (Rue des S. S. Pères,) 300 beds.
4. Hôpital Cochin, (Rue du Faubourg St. Jacques,) 200 beds.
5. Hôpital St. Antoine, (Rue du Faubourg St. Antoine,) 250 beds.
6. Hôpital Necker, (Rue de Sévres,) 140 beds; with a ward for the application of lithotritry, attended by Civiale.
7. Hôpital Beaujon, (Rue du Faubourg du Roule,) 180 beds.
8. Hôpital des Enfants Malades, (Rue de Sévres,) 550 beds, for children of both sexes, from two to fifteen years of age.
9. Hôpital St. Louis, (Rue de l'Hôpital St. Louis,) 700 beds, especially devoted to cutaneous diseases, ulcers, and scrofula. Here are medical baths, including steam and sulphur baths.
10. Hôpital des Vénériens, (called Hôpital aux Capucins, or Hôpital du Midi,) Rue des Capucins, 650 beds.
11. Maison Royale de Santé, (Rue du Faubourg St. Denis,) 175 beds, devoted to the sick and wounded, who are here attended on payment of three to six francs per day.
12. Maison d'Accouchement, (or Maternité,) Rue de la Bourbe, 350 beds.

The ten hospices or asylums are:—

1. Hospice des Enfants Trouvés, (de l'allaitement,) Rue d'Enfer, 258 beds; for the reception, nursing, and charge of foundlings.
- 2 and 3. Two hospices for old age; the Salpêtrière for women, 5100 beds; Bicêtre for men, 3200 beds.
- 4 and 5. Two hospices for incurables.
One for women and children, 525 beds, (Rue de Sévres.)
One for men, 455 beds, (Rue St. Martin.)
6. Hospice Laroche foucauld, 200 beds: asylum for those employed in the hospices.
7. Hospice des Orphelins, (Rue St. Antoine,) 750 beds—half for boys, half for girls—who are maintained till they grow up.
8. Institution of St. Péline, 175 beds: for the sick and weak of both sexes, who pay board.
9. Hospice des Ménages, (Rue de la Chaise,) 670 beds: for needy married persons above seventy, widows and widowers of sixty years.
10. Hospice St. Michel, 12 beds: for persons of seventy years of age.

The hospitals and hospices of Paris contain in all about 15000 beds. In this number are not included the four military hospitals, the Insane Hospital at Charenton, near Paris, the Institute for the Blind, &c. Of these institutions no one lies on the river except the Hôtel-Dieu, which is reckoned the most unhealthy; whether for this reason is undetermined. (In London, also, there is no hospital on the Thames, with the exception of a marine asylum on board a vessel in the stream.)

All the above named institutions in Paris are under the direction of the Administration générale des Hôpitaux et Hospices de Paris, with a separate Bureau d'Admission aux Hospices. There are also a large number of benevolent institutions, which are not under

the same direction. The mean annual number of patients received in seven years, from 1819 to 1825, amounted to 47,166, or one to eighteen of the population of the city. The mean stay of a patient in the hospitals is thirty-five days; the mortality about one to 8.37. The income and expense amounted in 1833 to 10,186,388 francs.

△ { The most useful institutions to the physician visiting Paris, are Hôtel-Dieu, Charité, the Hôpital de l'Ecole, Hôpital des Enfants, des Vénériens, and St. Louis. By consulting a guide-book, or plan of Paris, the reader can form to himself an idea of their various positions. Besides the four medical clinics of the professors of the university, as that of Chomel in Hôtel-Dieu, of Rostan in the Hôpital de l'Ecole, of Bouillaud and Fouquier in la Charité; besides the surgical clinics of Roux and Sanson in Hôtel-Dieu, Velpeau in La Charité, Jules Cloquet in the Hôpital de l'Ecole, and Blandin in La Pitié; and besides the obstetric clinic of Paul Dubois in the Hôpital de l'Ecole, there are some excellent clinics by physicians and surgeons not attached to the faculty, as by Lisfranc, Louis, and Piorry, in La Pitié. By clinics are meant the exposition and discrimination of the cases, which a physician or surgeon en chef delivers in the lecture room, after his regular round or service. Those who are especially followed during their visits, are Lugol, Bielt, Alibert, Gerdy, in the Hôpital St. Louis, Ricord in the Hôpital des Vénériens, Breschet, Magendie, Recamier, Bally, in Hôtel-Dieu, Civiale in Hôpital Necker, Rayer and Andral in La Charité, Larrey in the Hôpital des Invalids, Broussais in Vâl de Grâce. A service embraces from forty to one hundred and twenty patients. In each service there is also a younger chef de clinique for the aid of the physician or surgeon en chef. The time of the visits is the morning—sometimes as early as six o'clock. The internes, externes, and other pupils, follow the prescriber from bed to bed. The prescriptions and diet are entered in a book, and this is executed with sufficient rapidity. Then follow in the lecture room eloquent, or at least fluent discourses, and once or twice weekly, operations. After this come also the gratuitous consultations for out patients. In this manner the physician or surgeon is employed from two to three hours each morning. The hospitals, which were not originally designed for their present use, are not handsome buildings, but generally large, and the wings not divided into rooms, but traversed by long halls. The rows of beds against the walls, with their long white curtains, the sœurs hospitalières, in the white or black garb of their religious order, acting as nurses, the images of saints in the corners, the stone floors, the order and the stillness, make a peculiar impression.

△ { The Hôpital de l'Ecole has been built and arranged within a few years. It is opposite the school of medicine, and is especially designed for clinical instruction. It has three wards, one for medical patients under Rostan, one for surgical under J. Cloquet, and one for puerperal cases under Dubois. It is especially remarkable, because the clinics in this hospital resemble the German. There is an examination of the student at the bedside, and the obstetric

department has in part supplied a great previous defect, since exercises in touching and practical illustrations are given, which formerly were entirely wanting, Maternité being accessible only to female pupils.

Among medical societies the first is the Academy of Medicine, which includes in all 170 members, charges itself with the examination of new discoveries and remedies, is consulted by the government, and holds animated discussions in its own body. This society has a public session every fortnight. There are also eight other associations; the Société de Médecine, Athenée de Médecine, Société Médicale d'Emulation, Société Médicale du Temple, Société de Médecine Pratique, Société Medico-Pratique, Société Anatomique, Société Medico-Philanthropique.

Four years' study is requisite to obtain a degree of doctor, and the student must attend the lectures in a prescribed order; this matter not being left, as in Germany, to their own choice. They take sixteen inscriptions, and pay therefor about 1100 francs. They undergo five examinations, all of them public. Three professors, in their robes of office, consisting of a black cloak with red lining, and a cap, address questions to three or four students for about fifteen minutes. Every year about three hundred doctors of medicine and surgery are passed. The students mostly reside in the above named Quartier Latin, having there their resorts for breakfast and dinner, (cafés and restaurants,)—their smoking rooms, (estaminets,) theatres, and reading rooms, (cabinets de lecture,) where the Gazette Médicale and the Lancette Française, the popular medical journals, are always to be found. Whoever would learn farther how the Parisian students live in the fifth story, (au cinquième,) in a chamber of which a skeleton is an essential article of furniture, how they arrange matters with a grisette to attend to their clothing and washing, and how on Sunday they resort to the Grand Chaumière, the favourite dancing house before the Porte St. Martin, may find these particulars at length in the Book of the Hundred and One (*Livre des Cent et Un*). They smoke Flemish pipes, thee and thou each other, call a third person, whose name they do not know, Mr. Chose, and maintain in their own quarter, and in virtue of their numbers, a certain authority.

The concours forms in France the most powerful incentive to exertion among medical men. The operation of this principle commences even with the primary and secondary schools. In the six royal colleges they take place in each class, and there is also a general concours de composition, where, in solemn assembly, in presence of the minister of public instruction, the first prize is adjudged, the victor crowned, declared the first scholar of France, (so little account is made of the departmental schools,) and afterwards presented to the king. A concours is again necessary in order to constitute a candidate externe in a hospital; another makes him an interne; a third determines him an agrégé to the faculty; a fourth a professor. The same sort of trial is sometimes necessary in order to become physician or surgeon en chef to a hospital;

and always in order to be admitted to the academy of sciences or of medicine. The concours consists of an oral trial (*épreuve orale*), of a composition furnished in a given time, and of an investigation of previous titles (*titres antérieurs*). The theses must also be defended against the attacks of the rival candidates. The first trial is particularly for students, the two last are for the professors, and are reckoned the most certain. It is natural to imagine that chance, boldness, and fluency, have their influence, and that favour is not wholly excluded.

The students of all nations can *concour* for an externate in a hospital, provided they are eighteen years old; and after three years, if they have not been internes, can again enter the lists for the extension of their externate to a second triennial term. They bleed, &c., under the responsibility of the internes. The latter reside in the hospitals, receive a small salary, and are bound, at the end of the second year, to *concour* for the hospital prize, if not, they lose their place. An externe or interne has, in fact, opportunities for gaining instruction which exist in a far less degree for the mass of students.

Medical travellers always abound in Paris. The liberality with which the French throw open their institutions to strangers, can hardly be sufficiently extolled. Every day, as you take your walk, so free and unnoticed, among the hospital clinics, lectures, &c., you are again reminded of this; and however pompous it may sound, it is yet perfectly appropriate to feel in this respect a gratitude to the whole French nation. On this account, any marked attention to individual visitors might well be excused. In fact, however, no stranger who has any previous reputation established, fails to receive the *vénération* of the French. In the winter of 1835 several foreign physicians formed themselves into a society. It consisted of Italians, English, Americans, Germans, &c., and Ricord of the Hôpital des Vénériens was president. They met every week in the evening in a lecture room of the Sorbonne. The language was French, but the discussions and other proceedings bore a decided impress of the national peculiarities of the different members; and all was conducted by the president with great address. At the close of the winter the society gradually dissolved.

Among the German medical residents in Paris, who are numerous, there is a reading club which takes most of our journals.

The climate of Paris is not unhealthy; during the first days of his residence, however, a stranger is not unfrequently affected with diarrhœa, caused by the dampness of the streets, the defective mode of warming the apartments, or the water of the Seine. The number of those practising medicine and surgery in Paris, according to the Medical Almanac for 1836, is 1229. Some physicians in France have *Maisons de Santé*, so called, or private institutions for patients, who board in these houses and receive treatment and attendance. In Germany and England there are similar establishments, but only for the insane. Living in Paris is in general cheap; the poorer classes content themselves with bread, chestnuts, and sweet-

ened water; and the cherished wish of the Frenchman, the fowl in the pot on Sunday, seems to be but rarely gratified. The medical traveller in Paris will gain both instruction and amusement—the former in proportion to the pains he takes to acquire it; and it is by no means unlikely that he will feel it an act of self-denial when he takes his departure.

LONDON.

London is not the whole of England, as Paris is of France, but it offers in many respects an epitome of all countries. One finds in London such an abundance of scientific materials, that they at least deserve to be united into one whole, and to assume the form and name of a university. Such a metropolitan university is now expected, and it will be able to surpass those of Edinburgh, Dublin, Glasgow, Aberdeen, and St. Andrews, and to take a distinct character from those noble institutions at Oxford and Cambridge. The Thames flows through the town in a curve from west to east—passes under six large bridges and over the famous tunnel—and presents a sort of mixed character of sea and river, having brackish water and a tide. The principal part of the town lies north of the river. In the middle is the city; the west and east ends on the sides, Southwark on the south, and the boroughs form the environs. The shipping on the river and in the docks reaches from the sea to the first bridge. The bustle of the city is gradually extending itself towards the west end, to the squares and parks, where the more quiet people reside, and toward Westminster, where stands the parliament house and the abbey.

There are nine hospitals with schools attached, and a large number of infirmaries, dispensaries, work-houses, &c. The hospitals, which include instruction on the theory and practice of medicine, and on surgery, are, counting from east to west, the following:—

1. London Hospital, school and practice, 485 beds. *Physicians*: Frampton, Billing, Gordon. *Surgeons*: Andrews, L. Scott, Luke.

2. St. Thomas's Hospital, school and practice, 400 beds. *Physicians*: Williams, Roots, Burton, Lister. *Surgeons*: Travers, Green, Tyrrell, South.

3. Guy's Hospital, &c., 400 beds. *Physicians*: Cholmeley, Bright, Back. *Surgeons*: Key, Morgan, Bransby Cooper. *Consulting surgeon*: Sir Astley Cooper.

4. St. Bartholomew's Hospital, &c., 400 beds. *Physicians*: Hue, Latham, Roupell. *Surgeons*: Laurence, Vincent, Earle.

5. University of London Hospital, &c., 100 beds. *Physicians*: Elliotson, Thompson, Carswell. *Surgeons*: Sam. Cooper, Liston, R. Quain.

6. Middlesex Hospital, &c. *Physicians*: Hawkins, Watson, Wilson. *Surgeons*: Sir Charles Bell, H. Mayo, Arnott.

7. St. George's Hospital, &c., 330 beds. *Physicians*: Chambers, Seymour, Wilson, M'Leod—*Assistant*: Hope. *Surgeons*: R. Keate, Sir Benjamin Brodie, Hawkins, Babington—*Assistants*: Walker, Cutler.

8. Charing Cross Hospital, &c., 100 beds. *Physicians*: Shearman, Golding, Sigmond, Chowne. *Surgeons*: Pettigrew, Howship.

9. Westminster Hospital, &c., 250 beds. *Physicians*: Bright, Roe, Sir George Tuthill. *Surgeons*: Sir A. Carlisle, White, Guthrie, W. Linn.

There are also three hospitals for syphilitic patients, termed Lock Hospitals; Lying-in do.; several insane do., especially New Bethlehem and St. Luke's; a London fever hospital, three for diseases of the eye, &c. There are five infirmaries and eleven dispensaries. To find a description of these, the traveller will do well to consult the British Medical Almanac, or the last September number of the Lancet, or the London Medical and Surgical Journal, or the Medical Gazette.

The above hospitals are not, as in France, the common property of the nation, but are, with the exception of the three largest, St. Bartholomew's, Guy's, and St. Thomas's, which, together, have a fixed income of £140,000, maintained by the contributions of companies. Whoever, in fact, contributes one or two pounds yearly, or a certain sum at once, acquires the right of sending patients to the hospital, of speaking at meetings, of voting in the choice of officers, of participating in the management of affairs, in short, becomes a governor. Besides the proper physicians and surgeons, there are others whose business it is to deliver lectures on those subjects which are necessary to surgeon apothecaries, or what are termed general practitioners, in their examination at the College of Surgeons, and by the apothecaries' company. These schools at the hospitals have rather a surgical and anatomical than a medical character, and more of a practical than theoretic tendency. As an examples of their organisation, we give here the list of one of the most extensive schools, that of Guy's Hospital.

Lectures.	Lecturers.	Days and Hours.	Fees.	
			£. s.	£. s.
Medicine, }	Drs. Bright and Addison,	Monday, Wednesday, and Friday, at 3½ o'clock,	4 4	and 8 8
Mat. medica, }	Addison,	Tuesday, Thursday, and Saturday, at 3½ o'clock,		
Obstetrics,	Ashwell,	Daily, at 8½ o'clock,	3 3	" 10 10
Chemistry,	Aikin and Taylor,	Monday and Friday, at 9½ o'clock,	4 4	" 8 8
Anatomy, }	B. Cooper, Cock, and Hilton,	Daily, at 9½ and 2 o'clock,	8 8	" 21
Legal med., }	Taylor,	Monday and Friday, at 9½ o'clock,	3 3	" 4 4
Surgery,	Key and Morgan,	Tuesday, Thursday, and Friday, at 8 o'clock,	3 3	" 5 5
Botany,	C. Johnson,	Monday, Tuesday, Thursday, and Friday, at 6½ o'clock,	2 2	" 3 3
Pathological Anatomy, }	Hodgkin,	Tuesday, Thursday, and Friday, at 6½ o'clock,	2 2	
Comparative Anatomy, }	T. Bell,	Monday and Wednesday, at 6½ o'clock,	2 2	

N. B. The first named sums are for a single course, the second for unlimited attendance.

The mere visiting of the hospitals and the medical patients, for eighteen months, costs £15 15s.; of the surgical wards, £26 6s. yearly, and £20 half yearly; rendering manual aid as surgeon's dresser, £51 2s. yearly.

There are also special schools with special teachers. The first was founded by William Hunter, in the Hunterian School of Anatomy, Great Windmill street; there are also Blenheim street school, Webb street school, Aldersgate street school, Kinnerton street school, recently founded by Sir Benj. Brodie, Free hospital school, school of anatomy and medicine adjoining St. George's Hospital. In most of these, only single courses are given, but all have attached to them at least a museum and an anatomical theatre. On the whole, there are twenty schools in London. Among the lecturers are, to mention the larger part, in medicine, Davies, Williams, Bright, Whiting, Marshall Hall, Elliotson, Copeland, F. Hawkins, Burne, Stevens, Wilson, M'Leod, Seymour. In midwifery—Hugh Ley, Rob. Lee, Davies, Ramsbotham, Rigby, Ferguson, Ryan. In surgery—Lawrence, S. Cooper, Arnott, J. H. Green, Guthrie, Liston, Babington, Hawkins, Pettigrew, Travers, Key. In botany—Lindley, Edwards, Dickson, Hayes, Pereira. In chemistry—Turner, Brande, Faraday, Epps. In pathological anatomy—Hodgkin, Howship, Carswell, Barker.

There are also hospitals and schools, some of which are recognised by the College of Surgeons in London, in the provincial towns of England, especially Leeds, Liverpool, Manchester, Bristol, Bath.

The object of dispensaries is to furnish medicines to the poor, and to attend them in their own houses and among their families. The free hospital receives patients without the recommendation of a governor; which in the others is required, except in case of recent accidents. A self-supporting dispensary is formed by the contributions of the poor themselves, at the rate of a penny a week, and five half-pence for families, in consideration of which they are attended in sickness. Such an one has lately been established, and forms a kind of saving fund.

The English hospitals are mostly large and handsome edifices. The largest are Guy's, St. Bartholomew's, and St. Thomas's; the handsomest, St. George's, Guy's, and the London and Westminster Hospital lately built in Gothic style. The Greenwich, Chelsea, and New Bethlehem, which are rather asylums for maintenance, excel both in size and beauty. As the palace of St. James is by no means splendid externally, it has been said, with some exaggeration, that the sick in London dwell in palaces, and kings in cottages. The hospitals are well provided for, owing in part to the liberality of the English, in part to the general rivalry for a leading share in their internal management. The subscribers, to whom the hospital belongs, hold weekly or monthly meetings for business, and a yearly dinner, at which they converse and make up a collection. Sometimes violent dissensions occur among them. It belongs to

the same body to elect the physicians and surgeons. For the most part, those are chosen who are thought likely to maintain and increase the notoriety of the institution. They receive no other recompense than the fees already mentioned as paid by the pupils, and the advantage they find in becoming known, by their conspicuous position. Although fame and practice may be obtained by means independent of these appointments, yet these are regarded as the surest passport to both. A visit is made daily by one physician and one surgeon, so that each of the attending practitioners comes twice a week. One day in the week is devoted to receiving new patients, always excepting those meeting with accidents, to whom a separate ward is allotted, and who require no recommendation; and one day to operations, generally at one o'clock. This day is in the different hospitals as follows:—

Tuesday, at Guy's.

Wednesday, at the London.

Thursday, at St. George's, and the Infirmary for Diseases of the Eye, in Moorfield.

Friday, at St. Thomas's.

Saturday, at St. Bartholomew's and the Westminster.

The examinations of patients are brief, and afford little instruction to the pupil, because little regard is had to him; at least not so much as in the explanations and questions which occur at the bedside in German practice. Regular clinics have only recently come into general use. If I mistake not, Brodie was one of the first who delivered clinical lectures in cases of disease. They are now common to most of the hospitals, but it is rather in the French manner of general remarks, than by making the student prescribe, and overlooking his treatment, according to the German method. On the other hand, questions are often addressed by the students to the professors, expressed with great freedom, and answered in the same style.

The internal arrangement of the hospitals is not so uniform as under the administration générale at Paris. Baths are not of so frequent application. Cleanliness and order are perfect. The wards are not so large as in Paris, have wooden floors and a chimney, are frequently washed, whitened, and painted, and as free air is deemed of great moment, the windows are often open. The bedsteads are of iron, without curtains, or having these to reach from the head to the middle of the bed. The sick are not in all instances separated according to their respective ailments; surgical and medical patients are side by side. Above the head hangs a ticket, with the name and the directions, the prescribed diet for instance, as broth diet, fever diet, ordinary diet, &c.; the ticket also contains the name of the attending physician or surgeon, or both, when both have charge of the case. In St. George's, the first story contains the medical patients, the second the surgical; the females are in the left wing, the males in the right. There are

nurses appropriated to each ward; the hour of dining is from twelve to one o'clock, and therefore coincides with that of the visit. The sick wear a peculiar hospital dress, by which the convalescents are distinguished from the servants, attendants, &c. A large assembly room, a library, and museum, are seldom wanting; and a botanic garden is an occasional addition.

The pupils are of three classes:—First, those who are enabled by their means and position to take degrees of medicine at Oxford, Cambridge, Edinburgh, or Dublin; these are the fewest in number. Second, those who intend to practice surgery merely, and after examination become members of the College of Surgeons. And third, those who are also apothecaries and general practitioners, and who are examined by the apothecaries' society. The character of these medico-chirurgical hospital schools is therefore not as high as that of the universities. Much might be added to the present objects of instruction. The students make the visits with the physician, and refer carefully to the case-book which each carries with him, and which contains the journals of the cases. They take more part in the treatment, when they are surgeon's dressers, or house surgeons, which situations are expensive. The first, for instance, pay £51 2s. per annum, and £32 12s. for half a year. It must be conceded, that their external appearance, and general manner, make a much more favourable impression than those of the Parisian students. The whole business of medical instruction in the London hospitals and schools, is despatched in seven months, from the first of October to the end of April. During this period only are lectures delivered, which are distributed into two sessions, the second of which commences the middle of January. During the other five months, the hospitals can be visited, and single courses of lectures are delivered; but it necessarily happens that the great proportion of students are absent from London until the session recommences.

Medical learned societies are numerous in London. The Royal Medical and Chirurgical Society publishes the famous transactions. There are also the London Medical Society, the Westminster Medical Society, the Hunterian Society, the Medico-Botanical Society, and other not exclusively medical associations. Among these, the well known British Association is of recent formation; of similar character is the Provincial Medical Association, which holds annual meetings in some of the smaller cities, and likewise publishes transactions.

The climate of England is well known. The earth is fair, the sky is less so. England is damp and foggy, full of sea-coal smoke and soot, but very favourable to the growth of vegetables, cattle, and men. The race of the latter is stronger and handsomer than in France; the skeleton is often nobly formed; a well-shaped head is fitted on a slender neck and narrow pelvis, and the extremities are seldom too long. The skin and teeth are especially free from colouring matter, which seems to be all transferred to the eyes and hair. The mortality in London is not greater than in the country,

and there are many instances of longevity, which would be more numerous, but for residences in hot climates, and the dangers of the sea. The English cuisine does not develope the highest skill in the art; they serve up vegetables in small amount and merely boiled, without any farther preparation; meat in abundance, and wholesome; their breweries afford a strong and nutritious product, and the wines of the south of Europe are generally drank. The good living and the climate have an especial effect on a foreigner. The digestive apparatus accustoms itself to a less amount of more concentrated solid aliment, and to beverage, partly nutritious also, and partly well charged with alcohol, which in this country can be taken and well borne in large quantities. This gross food, with the dull climate, gradually extends its influence from the abdomen to the nervous system. The German begins to feel the English spleen, not, indeed, in the first week, but after some months, and a greater or less propensity to self-murder begins to develope itself. This disposition of mind and body is, however, soon overcome, and the "*mens sana in corpore sano*" is, after all allowance for national weakness, the proper attribute of the Englishman.

A stranger in England finds some difficulty in comprehending medicine and surgery in their various relations, because the hospitals are less accessible and their inmates less talkative than in Paris. In England, you owe your admission into the public institutions to individuals, in France to the nation, and the sense of obligation is much more concentrated in the former case than in the latter. Every time you enter a hospital here you are received with English hospitality; and in his manner to one whom he knows, in the direct frank kindness with which he aids you and procures you the aid of others, the Englishman is a pattern. The various objects of interest are often so remote that one is compelled to exert a constant activity to visit them. Beside the hospitals, one must at least find time to visit the Docks, the Tunnel, the Tower, St. Paul's, Apothecaries' Hall, the Adelaide Gallery, where are to be found models of the latest discoveries in an exhibition got up by a society for "the illustration and encouragement of practical science," both the Geological Gardens, the British Museum, National Gallery, College of Surgeons, which at this moment cannot be seen on account of repairs, the College of Physicians, Westminster Abbey, Parliament House, Vauxhall Gardens, the theatres, &c. But the stranger will meet with abundant objects of curiosity, even in the streets and highways, more or less suited to his taste. On the whole it is advisable not to adopt the *nil admirari* principle, not only because it is a cold pleasure-destroying maxim in itself, and here particularly misplaced, but because the English expect that a stranger should both see the lions and express a due degree of wonder.

For the further illustration of the state of science in England, and that the reader may gather a general impression of the knowledge possessed by the surgeons, general practitioners, and doctors of medicine, I subjoin the regulations adopted respectively by the

College of Surgeons, the Apothecaries' Company, and the University of Edinburgh, for the conduct of their examinations.

The council of the College of Surgeons, consisting of twenty-one examiners, require of the candidates,—

1. To be twenty-two years old.
2. To have devoted five years to acquiring a knowledge of the science.
3. To have studied anatomy and physiology by attendance on lectures and demonstrations, and by personal dissection during two seasons of at least seven months.
4. To have attended two courses of lectures on surgery.
5. To have attended lectures on physics, chemistry, and midwifery, for six months, and on materia medica for three months.
6. To have attended surgical practice for twelve months in a recognised hospital in London, Dublin, Edinburgh, Glasgow, or Aberdeen; or twelve months in a hospital elsewhere and six in one of the above.

The board of examiners of Apothecaries' Hall require,—

That the candidates shall have attended lectures during three winter sessions (from October 1 to April 15), and two summer sessions (from May 1 to July 31).

First Winter Session.—Chemistry, anatomy, physiology, anatomical demonstrations, dissections, materia medica.

Second Winter Session.—Anatomy and physiology, anatomical demonstrations, dissections, theoretical and practical medicine, medical practice in a hospital.

First Summer Session.—Botany, and other similar subjects, subservient to general education.

Second Summer Session.—Botany, if not attended the preceding season, midwifery, diseases of women and children, legal medicine, medical practice in a hospital.

Third Winter Session.—Dissections, theoretical and practical medicine, midwifery, medical practice in a hospital or dispensary.

They must likewise have served five years' apprenticeship to an apothecary, and be twenty-one years of age.

The examination consists in translating out of Celsus and Gregory's *Conspectus*; in medical prescriptions and questions from the *Pharm. Londin.*; in chemistry, materia medica, botany, anatomy, and physiology; in theoretical and practical medicine. Besides the general means of gaining the necessary knowledge to withstand these examinations, there are special teachers who prepare candidates at short notice, and are called "grinders." Both classes, as well surgeons (always distinct from the pure surgeons) as apothecaries, in general commence their career by being apprentices to an older practitioner.

The University of Edinburgh, according to the latest statutes for 1833, makes the following requisitions:—

1. No one can obtain the degree of doctor of medicine who has not devoted four years to medical studies, at least six months in each year, either in Edinburgh, or at some other university, where degrees of M. D. are conferred.

2. He must give evidence of having studied the following branches under a professor at a university:—

Anatomy ; chemistry ; materia medica and pharmacy ; institutes of medicine ; practical medicine ; surgery ; midwifery and diseases of women and children ; general pathology ; practical anatomy ;—in six months' courses.

Medical clinics, or the management of patients under a professor who lectures on the cases, in courses of six or three months.

Surgical clinics ; legal medicine ; botany ; natural history, including zoology ;—in courses of three months.

The candidate must also have dispensed, prescribed, and practised, for six months, with a recognised apothecary or surgeon, or in a hospital.

3. He must be twenty-one years old ; be versed in the Latin language ; in literature and philosophy ; and must himself have written a dissertation in Latin or English.

4. He must be examined orally, or by writing, by the faculty,—*First*.—In anatomy, chemistry, botany, theoretical medicine, and natural history. *Secondly*.—In materia medica, pathology, practical medicine, surgery, midwifery, and legal medicine.

5. If rejected on examination, he must study a year longer before a second trial.

6. If passed, he is expected, though not compelled, to print his thesis, and then forty copies must be given to the dean.

The degree is conferred in August ; some days previous he is called on by the senatus academicus to defend his thesis publicly.

These regulations are obviously similar to those of the German universities. The University of Edinburgh, which for some time had been losing its ancient renown, made a great effort to regain its position. Hence the adoption of these rigid conditions ; a measure which Sir Charles Bell, who goes thither as Professor of Surgery, has been earnest in forwarding.

CHAPTER II.

DOCTRINE OF INFLAMMATION IN FRANCE AND ENGLAND.

Surgical and medical doctrine of inflammation—Origin of both—Distinction between them—General character of medicine in France and England—Overweening regard to the blood—Reaction—Sir C. Bell's nervous theory.

The importance which has ever been attached to the theory of inflammation is well known, and it will not be disputed that this subject holds even a higher place in science at the present day than at any former period. If we take this then as our guide in judging of the condition of medicine and surgery in the two nations, we shall find this main distinction in the manner in which this subject is regarded in France and in England. In the latter country the theory of inflammation is more nearly allied to surgery, in the former to medicine. This distinction, which cannot easily be misunderstood, has no reference to the view taken of the nature of inflammation, but solely to its connection with one or the other of these departments of science.

The improvement of the doctrine of inflammation in England was effected in surgery by John Hunter; in France, in medicine, by Broussais. It will be proper to allude to some circumstances attending this accidental diversity, then to adduce some proofs of the existence of the distinction already stated, and lastly to apply this as the basis of a parallel between the state of medicine in the two nations.

It is almost impossible to estimate too highly the wonderful labours of John Hunter. Besides improving both branches of natural history, zoology, and botany, both in extent and accuracy, he took at once possession of the whole subject of medicine. While investigating, however, with so much success, human, comparative, and pathological anatomy, and particularly the process of inflammation, he took rather the surgical than the medical view of these subjects. He not only came forward first, and proved by his own investigations, when the question arose in regard to the formation of pus, that no pus is formed without preceding inflammation; he not only pointed out, in analysing the process of healing, its analogy to secretion; not only described granulation, adhesion, respiration, descriptions of which surgery has most advantageously availed itself; but likewise, and this fact should be made especially prominent, he made the subject of inflammation the central point of his pathological researches, and proposed it to succeeding enquirers as of primary importance and moment. As he considered inflammation, at least after injuries, to depend on the state of the blood and vessels, and its various modifications to be determined by the nature of the tissue, especially in syphilis, he impressed these principles so strongly on his countrymen, that their surgery still retains the same leading character. He died in 1793. His surgical disciples followed in the track thus pointed out. They made the anatomy of

regions their groundwork, regarded inflammation as he had taught them, only superadding Astley Cooper's doctrine of irritation, and thus carried surgical treatment to a degree of simplicity and clearness, which aroused the wonder and excited the imitation of other nations. Their untiring zeal likewise produced museums filled with anatomical and pathological preparations. But, as already remarked, medicine has gained much less advantage from Hunter's influence. When the British parliament purchased Hunter's collection and offered it to the College of Physicians, the latter declined receiving the gift, on account of the expense of preserving the specimens; the College of Surgeons, as well became them, accepted it with great joy, and still regard it as the greatest treasure.

While in this manner the theory of inflammation obtained an important place in English science, it had in France a different destiny, and became a part of medicine. At that time (1800) Pinel's nosography was the whole of French medical science. But a great revolution was soon effected by the genius of Bichat, to whom Pinel himself was not a little indebted. Xavier Bichat overturned the simple general system of anatomy, pointed out the variety of the structure and of the physiological life of the membranes, brought prominently into view pathological anatomy and the local character of disease, but died before the application of his discoveries could be made to medical science. On this Broussais came to the rescue, seized with the whole force of his mind the doctrine of inflammation, and raised it high above all others. He did not investigate its progress, nor illustrate it, like Hunter, by direct observation, which indeed was difficult when it occurred in internal parts, but he proved that it was or had been present. He acknowledged no difference in its essential character, but only a variation in degree. He carried it so far as to found upon it a complete system of medicine, and he has carried the assumption and treatment of inflammatory conditions to an extent and perfection, which, notwithstanding all opposition, has gained him numerous adherents, and caused the idea of inflammation even now to predominate in medicine.

The following may be recognised as the distinguishing features of the medical and surgical doctrines of inflammation :—

The first concerns their anatomical relations. The surgical doctrine has descriptive anatomy, or that of regions, for its basis; the medical rather general, or, in the sense of Bichat, physiological anatomy. The former contemplates inflammation in the external integument, the cellular tissue, the bones, the synovial membranes, the muscles and tendons, the fascial arteries, veins and nerves, or, by regions, in several of these together; the latter rather considers it in the organs of the three great cavities, in their various composition and structure, in the parenchyma, in the glands, and among the simple systems, especially in the mucous and serous membranes.

Another great distinction lies in the far larger number of results which the medical school admits; results at least in this sense, that organic changes are supposed to be necessarily preceded by inflam-

mation or stimulus. The doctrine of Hunter acknowledges no other results than discussion, hardening, adhesion, suppuration, ulceration, and mortification, while the other has, besides these, hypertrophy, the whole series of accidental formations, tubercles, softening of and exudation from the serous membranes. This is in fact a very important point, one which connects itself especially with the Broussaian doctrine. Hence the importance of the contest which Broussais had with Laennec respecting the origin of tubercles, whether here any sub-inflammation or excitation precedes; in other words, whether tubercles are enlarged lymphatic glands as Broussais maintained, or of the nature of deposit, as Laennec thought. Laennec died, and his rival remained for the most part victorious, by the general admission of a preceding stimulus.

A third distinction is more important, as respects the treatment, than the second. The surgical view divides inflammation into healthy and unhealthy; the medical regards it as simply unhealthy. What in one view is welcomed, cherished, or at most moderated only, is, in the other, opposed by the most powerful measures. The latter sees in inflammation, excepting only the so called critical abscesses, only a disease, never a wholesome effort of nature.

Applying this scale to the comparative condition of medicine and surgery in the two countries, we find that in England surgery is constituted and acts in perfect harmony with the simple and sure knowledge of surgical inflammation; but that medicine is less conscious of any doctrine of inflammation, and makes less, whether too little is hard to say, account and application of it; that in France, on the contrary, inflammation predominates (whether or not too much is easier to determine) as an almost constant local affection, while in surgery it is much less, in fact, very little, estimated and regarded. English medicine is therefore free from the uncertain medical inflammatory states which characterise the French, and French surgery is too little acquainted with the, so considered, surgical inflammation of England. Other circumstances of difference are found in the literature and the practice of the two countries.

The distinguished writers on inflammation in English literature, as Hunter, Duncan, Thompson, Astley Cooper, Travers, James, Wilson, Lucas, Jones, Earle, not to mention others, are numerous. In France there is hardly a monograph to be mentioned on the subject of inflammation, except that of Gendrin (in 1826), who thereby gained a prize, and who keeps especially in view the general tissues of Bichat.

In practice, the French surgeons still retain their preference for healing by the second intention; a preference which, unless founded in endemic constitution, in peculiar aptitude to erysipelatous inflammation, or in the want of plasticity in French blood, is certainly to be regarded as a great mistake. Roux was surprised during his visit to England, in 1816, when he saw the treatment of wounds by adhesive methods. He tried the experiment in his own hospital, but has for the most part gone back since to his

former system. On this subject there has been a strong conflict of opinion in France. Dupuytren did not wholly reject this method, and so far Dubois, Richerand, and Maunoir agreed with him. But Pelletan, Boyer, and Larrey, maintained their opposition. Larrey says on this subject in his *Clinique Chirurgicale*, for 1830:—"Union by the first intention is not always desirable, especially not in general or chronic disease; and for the rest there is never much to be gained by it." Serre, of Montpellier, has lately written on this subject a "*Traité de la Reunion Immédiate*." The latest essay is by J. Sanson, "*De la Reunion Immédiate des Plaies*, 1834," in which he endeavours to estimate the advantages and evils of the practice. This matter, therefore, which is considered as settled in England, is still a subject of controversy in France. The English always attempt primary union in the first instance, and if this fails, content themselves with the secondary. The French know as little in regard to the beneficial operation of cold water. They still use more lint and more cerate than any other surgeons.

In Germany, where all foreign improvements are well known, and where, perhaps, on deliberate comparison, the two forms of inflammation are viewed in their correct relation to each other, much attention is paid to what is termed the specific character of inflammation, a subject on which I shall not attempt to enlarge in this connection (see fifth chapter on Ophthalmology). The whole subject of inflammation, however, the nature of which, and the extent of the application of the term, are both subjects of dispute, has always one circumstance attending it, the condition of the blood and blood-vessels, which especially attracts attention. Since Harvey's discovery of the circulation, the blood and its vessels have been kept constantly in view. These formed the leading objects with Boerhaave, in his theory of the thickening of the blood and the pressure of the globules into the capillary vessels; of Cullen, in his doctrine of spasm in the small vessels, and of Hunter, in his assumption of the vitality of the blood. The effect of this was evident in the treatment. Attention was directed to antiphlogistic means, and to withdrawing that which was regarded as the cause of the morbid process. The greater the importance attached to the local inflammation, and the less the phlegmon was regarded as a general disease, the more thorough was the antiphlogistic practice and the abstraction of blood. It was also a circumstance calculated to bring medicine nearer to surgery, and thus to simplify practice, that the surgeon easily held himself qualified to practice on medical diseases with the means peculiar to his own art, provided the case, complicated or difficult as it might be, had this process as its leading cause. It necessarily happened, however, that opposition arose to this frequent blood-letting, and consequently to the so general admission of an inflammatory condition, with which view this mode of depletion came to be almost inseparably connected. In this way, therefore, on the ground of treatment, of practice, arose the first reaction against the doctrine of inflammation. This may be seen plainly enough both in France and England. In France

Louis announced, as early as 1828, and afterwards in 1835, after new investigations, his "Researches on the Effects of Blood-letting in certain Inflammatory Diseases." In this work he condemned the excessive confidence which had been reposed in bleeding in pneumonia, and from his observations, made according to the numerical method, he draws the conclusion that venesection may exert a favourable influence on pneumonia and abridge its course, but only when employed in the first two days or towards the close; and that this influence is much less than had been generally imagined. This work is dedicated to an Englishman, Marshall Hall, who himself published in 1832, in the seventeenth volume of the Medico-Chirurgical Transactions, some experiments on the effects of loss of blood, made on dogs, to determine how this depletion acts where there is no morbid state, what difference is made by age, what organic changes ensue upon the operation, what rules and bounds can be prescribed to the employment of the remedy, and what is the most effectual mode of restoration after hemorrhage. In 1835, J. Wardrop published researches on blood-letting. These are at least evidences of a tendency to, and readiness for, a second and more decided reaction against the antiphlogistic course hitherto pursued. A circumstance favourable to this tendency may be found in the prevalence of that genius epidemicus, which causes typhus to abound. Such an explanation, however, of the change of theory and of practice in medicine is entirely too German and too ingenious for a Frenchman to understand.

The other change in the theory of inflammation seems destined to be effected by physiology. As the doctrine of Hunter was preceded by the discovery of Harvey, as this was the true fountain from which flowed that current of reasoning by which the supremacy of the blood was established, so in our days all are ready to attribute an augmented degree of importance to the nerves, the natural rival of the circulating system. The discovery of Bell has been justly placed in comparison with the discoveries of Harvey. The truth of his doctrine of the nerves, and, to use the expression, of the nervous circulation, the distinction of the motive, sensible, respiratory and organic power has, with greater good fortune, met with notoriety, belief, confirmation, respect. This happened as well in England as in France and Germany, through such men as Marshall Hall, Wilson Philip, Magendie, Flourens, Panizza, Bellingeri, John Müller. Nowhere, perhaps, out of England, have these new views met a more cordial reception, or been applied more extensively to pathology and therapeutics than in Germany. Thus far, indeed, it cannot be pretended that these views of the physiology of the nerves have been applied to explain, or have had any direct influence on, the doctrine of inflammation. But perhaps it is not unreasonable to hope, that the light which has been hereby thrown on the subject of local pain and palsy, may yet be extended to this.

CHAPTER III.

FRENCH MEDICINE.

Broussais's doctrine ; extent of its influence—French medicine independently of Broussais—Auscultation and percussion—Louis and the numerical method—Fièvre typhoïde—Reflections on French therapeutics—Ricord's observations and practice in the Hôpital des Vénériens—Phrenology and Orthophrenia.

We must now allude again to Broussais and his doctrines, without which, any account of French medicine must necessarily be imperfect. This brief review will probably make it evident to many that much of his doctrine has been adopted into the science, and has tended to form the peculiar national views on the subject. We shall speak first of Broussais's views on inflammation—then upon sympathy and revulsion—lastly, on the relative importance of the mucous membrane.

Broussais does not pretend, in his pathology of inflammation, to explain its nature, but only to prove its extensive existence, and to demonstrate that the inflammatory condition of an organ is only an increase of its vitality ; he dwells especially on the mere distinction of degree, but rejects the various forms of the disease. Hence he called his doctrine the physiological, because inflammation is not a new condition in the economy, but an exertion of the usual organic vitality. Thus the vascularity of the stomach during digestion is physiologically in its normal state, but pathologically somewhat increased. He rejects, therefore, what he terms *entities*, by which are meant separate and dissimilar conditions of the economy, and equally rejects all specific treatment. He denies scrofula and syphilis to be distinct entities, and seeks to explain the medicinal virtue of cinchona and of mercury, by the transfer of local irritation to internal mucous membranes. He proposes three degrees of phlegmasia ; beside inflammation there is sub-inflammation, in which there is no redness, because the red particles do not force their way into the serous vessels ; and likewise mere excitement or irritation.

Broussais has pointed out the facts, that we may have an intense local inflammation in a weakened constitution ; that the greater part of diseases have an actual local cause, and that this is of an inflammatory or irritative nature—in fact, of a nature to be benefited by counter-irritation. Thus far he deserves credit for the pathology of pneumonia, bronchitis, pleurisy, and for the explanation of phthisis, asthma, whooping cough, hydrocephalus. He pointed out that inflammatory stimulus gives occasion to delirium, mania, epilepsy, apoplexy ; farther to stricture, blennorrhœa, adhesion. He thus supplied a cause for all the organic alterations which pathological anatomy found in such abundance, especially in regard to the alimentary canal ; he maintained that pain was not always a companion of inflammation, that the mucous membrane might be inflamed alone and without involving the peritoneum, that dyspepsia,

jaundice, (duodenitis,) tabes mesenterica, (swelling of the mesenteric glands, as a sequel of gastro-enteritis, analogous to swelling of the inguinal glands in inflammation of the urethra,) diarrhœa, dysentery, melæna, ascites, and diseases of the kidney, depend on inflammatory states.

He farther considered the pathology of fever. He taught that fever may arise from inflammation of a part, when sufficiently active to be transferred to the heart. "In this case the contractions of the latter are more rapid, the circulation is accelerated, and the increased heat of the skin is found painful; symptoms which we name fever. Nay, wherever there is fever, if a local affection is the maintaining cause, it is not an essential fever." He does not say, indeed, as should here be remarked, that all fevers proceed from gastro-enteritis, but he says that disease, that is, irritation, of an important organ may cause disease in another organ through sympathetic irritation.

The doctrine of sympathy and revulsion was especially rendered prominent and clear by him. Sympathy is the physiological relation in which organs stand to one another; revulsion appears in pathological conditions. Sympathy rests upon two laws, which constitute sympathy of relation, or that of animal life and organic sympathy. Examples of the first are found in inflammation of the mucous membrane, of the alimentary canal, headache, convulsions, delirium; organic sympathy, on the contrary, shows itself in excitement of the circulation, heat of skin, jaundice, or in the respiratory organs in cough and oppression. If the animal sympathy is excessively excited, the patient may die in consequence of a reaction upon the nervous system of animal life, and if the sympathy of organic life is unduly roused, he may fall a victim to disease of the lungs, liver, &c. Hence it especially results, that sympathetic excitements of the functions, when great and long continued, may from functional be converted to actually organic diseases. Thus headache in enteritis may proceed to actual inflammation of the brain, or through intense and continued sympathetic affection of the heart, disease of this organ may be developed; pneumonia may arise from cough and stricture; or, in inflammation of the brain, a gastritis be brought on by the vomiting. Hence it is unscientific to direct the treatment to the functional disease alone, and much safer to consider the organ itself as affected.

Revulsion is a change of the seat of disease dependent on sympathy. It may be effected by art, and employed as a therapeutic agent, or occur independently of interference from treatment. An example of the former is afforded by blistering in pleurisy, of the latter by metastasis to the mucous membrane of the intestine in pleurisy. Revulsion is threefold. It may take place from one internal part to another, which is internal, from an external to an internal, which is central, from an internal to an external, which is peripheric revulsion. The advantage or danger of revulsion has been always considered as depending on the comparative importance of the parts between which the exchange is effected, and like-

wise on their respective ability to relieve themselves by secretion. This, for example, cannot occur in the brain, and hence it is especially desirable to effect revulsion from this organ.

Artificial revulsion is now always readily employed in treatment, though nature cannot always be successfully imitated in this matter; and it might well be supposed that Broussais, who has so ably described its influence, would especially recommend its application. He reminds us, however, that revulsive measures are in their nature stimulant, and though for the most part local in their action, may become the source of actual inflammation, and thus another organ be rendered the seat of disease, unless increased secretion supervene, which is not always the case. Thus drastic cathartics, diuretics, and hepatic stimulants may prove irritant to the kidneys, intestines, and liver, unless the respective secretions ensue. Broussais therefore rather opposes than favours active revulsion, though he allows that crises are retarded by acute local inflammation; when this is relieved, the crisis supervenes, and this offers the best means of bringing about such a result.

Gastro-enteritis, in its relation to the doctrine of Broussais, demands especial notice. Broussais, who maintains that the whole system can never suffer simultaneously—be universally aroused or depressed—but that local excitement in one part must be accompanied with local debility in another, also thinks, and thus far with Brown, that local stimuli determine this. When by their means excessive excitement occurs in one part, this happens first to those organs which are most abundantly supplied with nerves. This applies especially to the brain, which, however, resists inflammation much more than others, while no part is more susceptible than the digestive apparatus. The lungs are less so, because although well supplied with blood they are less rich in nerves, “not so thickly strown with these irritable nervous papillæ” which, furnished by the ganglionic system, and by the numerous ramifications of the cerebral nerves, give to the stomach that extreme sensibility which so well fits it for its peculiar functions. It is because the organic sympathy, and that of relation, are so closely united in the alimentary canal, that irritation there is so easily produced, sometimes primarily, and sometimes, if considerable inflammation is developed in another part, the alimentary canal is destined to suffer secondarily. He adduces, as an example, the case where, after lithotomy—and he might have added, after injury of the head and brain, in an individual of good constitution—fever and inflammation follow, and while the irritation extends, congestion takes place in various organs, in none more frequently than that of digestion; and if circumstances, predisposition, and treatment favour such a result, gastritis or peritonitis is developed. Few fever patients will be found in whom pressure on the stomach is not painful. How little encouragement Broussais requires, in order to decide on the presence of inflammation, is hinted above; and according to him, inflammation of the gastric mucous membrane is very apt to extend downward, and thus a gastro-enteritis to be developed. With him

dyspepsia is gastritis, vomiting happens from inflammatory swelling and contraction of the pyloric orifice, diarrhœa because the inflammation extends to the ileo-cæcal valve; dysentery is colitis, dysury cystitis, and red tongue and throat indicate the internal fire which blazes up as through the crater of a volcano. Acute cutaneous diseases show themselves in a kind of erythema, and if a certain constitution of the season is present, the character of the disease is still more marked. The victim of measles or scarlatina dies, not of the affection of the skin, but of the accompanying gastritis. Though Broussais was not the first to notice, he has directed attention to the fact, that the fatal or favourable termination, the more or less rapid return of strength in these diseases depends, not on the eruption, but on the condition of internal organs. Assuming the fact that enteritis is usually present in fever, (for the charge that he makes it essential to the latter is unjust,) he never applies internal means, which might produce local irritation, but demulcents, oils, gum-water; while cathartic medicines are replaced by mild enemas, and leeches and cupping form the most active remedies.

How far do dissections maintain these doctrines? Dissections have proved much. Few bodies are opened without finding evidence of visceral affection, sufficient at least to have maintained the fever which proved fatal. Andral, an opponent of Broussais, as we shall see below, has given an account of fifty examinations of persons who died of fever. He found, in three fifths, sufficient disease in the intestines to account for death. Of the remaining two fifths, three were cases of erysipelas of the lower extremities; two, arachnitis; two, croup; one, hepatisation of the lungs; four, diseases of the stomach; and in four the lungs, liver, and spleen, were filled with hydatids. (See below *fièvre typhoïde*.) Are we not then justified in adding something to the doctrines of Pinel, Cullen, and Frank, in regard to fever, or in deducting something from them? As respects the extension of the doctrine of inflammation, which Broussais allows himself, the explanation of this is, that dissection decides nothing absolutely. While others, and even Abercrombie, have found great vascularity of the mucous membrane of the stomach, without being satisfied of the presence of inflammation, Broussais requires much less to decide upon its presence.

Andral will often describe as hyperemia or deficient nutrition what Broussais terms irritation or sub-inflammation. Andral, too, blames the reducent plan of Broussais in actual inflammation, and maintains that, in the advanced stage of fever, the good effect of stimulants may result from the asthenic condition of the whole system.

I know not exactly when the intestinal scissors were invented; but it appears to have been this instrument which determined Broussais to invest the new discoveries in the alimentary canal, due to the activity of his mind, with more importance and distinctness. In the intestinal canal is evidently found the nidus of his doctrine.

How great the authority of Broussais once was, is well known; it is now on the wane. When one sees him take his seat in the large hall of the school of medicine, in the red cap of the faculty, and his blue spectacles; how he directs his eyes to one spot, chafes more and more as he proceeds with the theme of irritation, and calls to his auditors, the number of whom fills only the first bench: "Why then, young men, is there no one among you with good sense enough to oppose this doctrine of general symptoms, so that science may march on—march!" he sees at once that the spell is broken. In the midst of his lecture new hearers enter the doors above and below, until the amphitheatre is filled. They are attracted, however, not by the eloquence of Broussais, but by their desire to obtain places for the lecture on internal pathology, which Andral delivers an hour later.¹

One who considers what would have been the history of French medicine without the appearance of Broussais' system will probably be led to the conclusion, that all the means existed before his time of bringing it to that condition in which it is at the present moment. Broussais imparted to the pathology of the alimentary canal, and to inflammation, an excessive importance, which has been diminished gradually, or is now in the progress of being so, to that just measure to which the regular progress of science would in time have brought them. Pinel formed his system in the true French spirit, as shown in the mathematics of Descartes and the sensualism of Condillac. The eternal contest carried on in the world between spirit and sensualism, power and matter, then decided itself in favour of the last. Hunter's theories and labours contributed to this end. Portal began to apply himself to the study of pathological anatomy, and, above all, Bichat opened a path in the same direction. This Bichat—whom, as Corvisart expresses it, Europe envies to France—who died in the thirty-third year of his life, is still the wonder as well as the idol of the French. He said: "To observe nature, to collect facts, to derive general principles from these facts;—who are we, that we should turn away from this path?" "What is observation," said he again, "if we do not know the seat of disease?" In a word, as Bichat introduced anatomy into physiology, and physiology into anatomy, so in the application of his views to medicine, which, alas, he did not live to make himself, disease gained a local habitation.

¹ The following statistic table will confirm the assertion of the diminished success of the Broussaian doctrines. In 1823, France still exported leeches to the number of more than a million. After this she exhausted not only her own supply, but also that of England, Germany, and Hungary, and has even drawn them from Moldavia and Wallachia.

	<i>Import.</i>	<i>Export.</i>
1820		1,157,920
1823	320,000	1,188,855
1827	33,634,494	196,950
1833	41,654,300	868,650
1834	21,885,465	868,650

Whether French physicians now become blind partisans of Bichat, or whether, as generally happens, they have judgment to reject his extravagances, they at least stand on the general ground of localisation which characterises the medical science of the present day.

AUSCULTATION AND PERCUSSION.

In order to find the seat of disease, to estimate changes of structure during life, the physical signs which are determined by the sense of hearing, have been clearly studied in France. The investigation of these by Corvisart, according to Avenbrugger's plan of percussion, led, after Laennec's invention of the stethoscope, to unexpected results. Medicine, surgery, and midwifery, all found in this instrument important aid for diagnosis. Its adoption is general in France, scarce less so in England; but in Germany, for some unassignable reason, least of all. We have translated all the works on the subject, but made little practical application of them, and our literature can boast of but a single original treatise. To insist on the importance of auscultation and percussion, is hardly needed; no one has been found to entertain doubts on these points, who has once applied and understood them. It is well known, that both modes of hearing may be either mediate or immediate. In auscultation, we catch the active sound of the passages, and detect their physiological and morbid alterations. In percussion, a passive sound or echo is elicited by a blow. In auscultation, either the naked ear is applied, or the stethoscope intervenes, by which latter mode the sound may be heard in a more limited space, and from parts to which the ear could not be applied. In percussion, the fingers are applied to the bare walls of the chest, or another finger, or an ivory instrument, termed a pleximeter, is interposed.

As both these means of diagnosis have been most extensively adopted in France, the best judgment of their utility can be formed by reference to the state of medicine in that country. Auscultation and percussion necessarily bring into play living pathological anatomy, or, more properly, anatomical pathology. This is pursued at present in France with a zeal which appears to many to be too exclusive. We are reminded how the observation of the tongue, the urine, the pulse, have successively absorbed attention, and exclusively directed practice. In reply it is said that this was not the fault of the means, but of those who employed them. This physical exploration, too, applies itself more directly than the others to the symptoms of disease. The distinctness with which organic diseases of the bronchia, of the parenchyma, of the lungs, of the pleura, of the ventricles, of the heart, the valves, and pericardium, can be discriminated, affords, besides the advantage for diagnosis and prognosis, frequently another for the treatment immediately connected with it. This is more true of acute than of chronic disease; but in the latter, at least, the prognosis is rendered more satisfactory. To have such auxiliaries to determine whether inflammation of the lungs, of the bronchia, or of the

pleura—whether endocarditis or pericarditis is present, cannot but be desirable in the highest degree to the practitioner. These signs, too, inform us, not only of the existence, but of the extent of disease; how far tubercles have advanced; whether pneumonia is present; whether a cavity exists; to what parts of the pleural or peritoneal cavity effusion has extended; what alteration has occurred in the condition of the heart, organic or otherwise; whether the difficulty in breathing has an organic cause, or is only functional. They assist the accoucheur to determine the presence of pregnancy, the existence of twins, the life or death of the fœtus; they facilitate to the surgeon the diagnosis of swellings, whether these consist of water, hydatids, air or solid matter. These advantages are too obvious to need illustration. But to make these means still more acceptable to the practical physician, it may be added, that a knowledge of their application is by no means difficult to acquire, since the most important and useful indications are readily detected. In percussion, to distinguish the flat sound from the clear, in auscultation, to discover the crepitating sound of pneumonia, or detect the second sound of the heart, is soon understood, and its use appreciated. The more minute and nicer distinctions, it is admitted, require longer practice to understand; but in regard to these there is no certainty, even to the most practised ear. Two auscultators may differ in the interpretation of a sound which both detect; and it is admitted, *a priori*, that it is not advisable to make these nice distinctions. Thus, for example, the discrimination between bronchophony and ægophony is no longer held to be of practical use. Louis even reproaches Laennec with having abandoned himself to auscultation too much in certain cases in deciding on the existence of pneumonia; maintains that nothing positive can be concluded from crepitation, independently of other symptoms, as expectoration, &c., and that he himself, notwithstanding his practised ear, was sometimes unable to distinguish between the crepitating and subcrepitating râles (the signs of bronchitis and pneumonia). It is, indeed, acknowledged that auscultation and the other means of exploring are inadequate to a certain result, unless other symptoms are taken into the account.

The value of physical signs in determining diseases of the heart is, perhaps, as great as in the exploration of the lungs, although the results to be obtained are less certain than in pulmonary affections. That the diagnosis in the former case falls short of perfection, is abundantly proved by comparing careful and candid reports of cases with the subsequent autopsy. To illustrate the difficulty of this diagnosis, two considerations only need be mentioned. In regard to the causes of the second sound of the heart, no less than five distinct opinions exist; when, therefore, this becomes altered, or its recurrence irregular, we have no right to draw any certain conclusion from this circumstance. Farther, the position of the heart may, by hypertrophy and enlargement, be so changed, that the right and left sides of the organ, usually referred to the end of the sternum, and to the left præcordial region, between

the fourth and seventh rib, may vary so materially from these relations as no longer to be recognised.

From these considerations, it appears to be advisable and necessary to depend entirely on the more prominent signs. The physician will not be permitted in private practice, as in a hospital, to place his patient in unusual positions, and the application of the auscultating instruments may cause annoyance. The latter objection usually yields to habit, but it may often be met from the commencement by applying the ear to the back instead of the chest, while light percussion with the finger interposed is seldom objected to.

The improvement of the latter operation by the employment of a small plate of ivory, as above mentioned, is due to Piorry. There results from this, besides the resonance of the chest itself, the peculiar sound of the substance employed, which, when once understood, can create no confusion. An advantage, however, arises from this source, that the percussor has a sensation of resistance, and thus the thickness of the organ below, and its degree, can be judged of by the sound. In this manner, the thickness of the liver, or of any tumour lying below the parietes of the abdomen, can be inferred with some approach to accuracy. Piorry formerly laid down certain distinctions respecting the various shades of resonance, but omitted these in the second edition of his treatise on the subject, as tending to increase the difficulties of the learner. Simplicity, on the whole, seems to be the best rule.

One injurious effect may here be noticed, which is liable to follow from both methods of exploration, but by which the value of the science itself is by no means impaired. This is a passion for post mortem examinations. A passion of any kind may be injurious when indulged to excess, and this is the more to be feared, as it throws treatment too much in the back ground. Curiosity, and particularly a desire to know whether the diagnosis given was correct, must often cause the autopsy to be expected with impatience, and the consequence, though wholly unperceived by the practitioner, must be, that the real object, the restoration of the patient, will be more or less lost sight of. This is particularly unfortunate for French practice, which is already feeble enough, and their want of attention to this point appears the more natural, when we remember that a lively temperament and want of circumspection are respectively the cardinal virtue and leading fault of their national character.

Andral, Louis, Bouillaud, Chomel, Piorry, Reynauld, and Fouquier, are seldom seen visiting their patients without a stethoscope, and as they have the opportunity to acquire great skill in their hospitals, other physicians are induced to call them in consultation in cases to which this important aid of prognosis and diagnosis is applicable.

LOUIS AND THE NUMERICAL METHOD.

Louis, now one of the most esteemed French physicians, was from his seventeenth to his thirty-third year in Russia, where he studied and practised. He made while there the oft-repeated observation, that a great disproportion exists between the multitude of theories, and the small number of observed facts. Accidental circumstances called him back to Paris. He became acquainted with Broussais and his doctrines, followed assiduously in his footsteps for a considerable time, and satisfied himself that while Broussais clearly proved others in the wrong, he was very far from being always in the right. On this Louis came to the determination to devote himself as closely as possible to pure and simple observation. He gave up practice, entered Chomel's ward in La Charité, and carried out his purpose like a solemn vow. He passed, as he tells us, from three to five hours daily in the hospital, and each autopsy employed him fully two hours. He collected the histories of one thousand nine hundred and sixty cases, and the post mortem appearances of three hundred and fifty-eight. These formed the basis of his work on phthisis, which at once raised him to the highest rank among medical writers. At first his scrupulousness was ridiculed; but when he came forward with the results he had obtained, every doubt vanished, his practice attracted notice, and from that moment dates that pursuit of statistic comparisons which distinguishes the Parisian schools. For the last six years Louis has been a physician at La Pitié, and, though not a member of the faculty, holds a clinic on his own account, which is attended by a numerous audience, especially of strangers. He says: "Whenever I have formed an idea *à priori* without analysing the facts, I have always (?) found after this analysis that my *à priori* conclusion was false." With this strict impartiality he proceeded to the observation of acute disease. In 1826 appeared his "Anatomico-Pathological Researches in several Diseases," then his "Gastro-Enterite" and "Typhoid Fever," containing minutes of three hundred post mortem examinations, and more than nine hundred cases. He has now become an opponent of Broussais, and a partisan of Laennec.

This numerical accuracy, however, to which Louis was led by his honest zeal, and his upright opposition to uncertainty, must be regarded as especially favourable to the progress of medicine. He has given it the peculiar title of numeric method, under which it has attracted well-merited notice. In recounting the symptoms of disease, and the appearances on dissection, he furnishes trustworthy materials for forming conclusions, and recent conclusions are worthy of confidence because the product of simple induction. Thus he found that phthisis almost invariably commences with tubercles in the upper lobes—that it is more frequent among women than men—that pneumonia is more easily resolved in tuberculous than in sound lungs—that simple bronchitis commences at the base of

the lungs, and follows a course the reverse of phthisis—that chronic peritonitis indicates tubercles in the lungs—that tubercles are scarce ever found in any other part without being at the same time in the lungs—that acute affections, occurring without complication, mostly seek one side of the body, or are limited to one part of a single organ. But he expresses himself more accurately. He obtains the results that two out of three fatal consumptive cases exhibit hemoptysis; that women are more subject to hemorrhage than men, in the proportion of three to two; that in typhoid fevers diarrhœa occurs in twenty-nine out of thirty cases, ulceration of Peyer's glands in five cases out of six, and that changes in the mesenteric glands are a constant symptom.

In this manner he has not so much made complete discoveries as shown the proportions in facts already known; he has not so much discovered new truths, as settled old ones conclusively. For this purpose he adopts the course pursued in mathematical and physical sciences. Like a meteorologist he observes the symptoms of the patient, minutes them, arranges them in a tabular form, compares them, deduces his results from the calculation, and the average number gives the new discovered truth. His examinations last an hour, and he investigates the visible remains of silent death with inexhaustible patience; not only the external form, colour, consistence of the organs are noticed, but with equal exactness the parenchyma is sliced through and carefully inspected. He opens the intestines with scissors, and allows them to pass through his hands from above downward; with close attention he examines every successive part, dictates the appearances, and allows nothing to escape him.

Such zealous honesty, which can never be sufficiently imitated, and which promises so much, does not however promise every thing. The numerical method increases the exactness of those results which we owe to the labours of good observers, as Sydenham, Boerhaave, De Haen, Stoll, Frank, when these were expressed in general terms, as “frequently” or “seldom;” but this accurate knowledge is limited to the observer himself, unless we can have the formalities of legal investigations applied to medicine. The numerical method assures us of the observations which have been made, but by no means assures us that nothing has been overlooked. It authorises us to draw conclusions from duly arranged numerators and denominators; but he who has the patience to count, has not always the talent to observe and to see correctly, or the tact to establish wide and generally useful conclusions.

TYPHOID FEVER.

If I do not greatly err, Chomel assigned its name to typhoid fever, after he had written on oriental typhus. Typhoid fever is now attracting especial attention in France, yet it is not easy to form a correct idea of its nature, or how extensively the term is to

be applied. Chomel takes a wide range, and includes in it all those forms of fever which have been represented as continued fever of inflammatory, bilious, mucous, adynamic, ataxic, or slow nervous type; in other words, as *fièvres continues graves*. Many other names are assigned to it, as *fièvre entéro-mésentérique*, (Pinel the younger and Serres); *exanthème intestinal*, (Andral); *dothinentérite*, (Bretonneau); *ileodichludite*, (Bally); *entérite folliculeuse*, (by others); *gastro-enterite*, with nervous affection of the brain, (Broussais). In Germany the names of *typhus abdominalis*, and *febris intestinalis ulcerosa*, have been given to it. My object here will be to illustrate some of the results obtained by Chomel, most of which, it is true, are already known in Germany, and have been there subjected to examination.

The typhoid eruption, or *taches rouges*, the rose-red papulæ, appear mostly on the abdomen, sometimes sooner, sometimes later; are often indistinct, sometimes wanting; the last in sixteen cases out of thirty. Frequently they are so faint and so scattered, that an express search is necessary to find them. They are distinct from the proper petechiæ, as they can be removed by pressure; and distinct, also, from the *sudamina*, which appear with marked sweating, and are rather to be termed *miliaria rubra*.

The anatomical changes in the canal are the following: In the first stage of the fever we find enlargement of the glands of the mucous membrane. The glands of Peyer (not rather vesicles?) appear more closely set, and resemble large elliptic plates (plaques) granulated, more numerous in the ileum or jejunum, never in the large intestine. The glands of Brunner, more scattered, are also found sometimes enlarged, and then also in the large intestine. These plaques, from one to three lines in height, exhibit, on cutting through them, a yellowish white mass. The mucous membrane itself offers less alteration. The mesenteric or lymphatic glands always exhibit an enlargement.

After death in the second period, we discover ulceration of the intestinal glands. Those granulated plaques have disappeared, and in their place is found an excavation—a want of mucous membrane in these spots, or the membrane remaining in fragments. The appearance of these pits is waffle-like, reticulated, sometimes elliptic; their size is from two to three lines in diameter, their colour red or yellow from bile. They also extend deeper, and may even penetrate the peritoneal coat. Even the glands of Brunner may be ulcerated, which, however, is more rare.

In the third period or stage, when death has not supervened, follows cicatrisation or healing by resolution. Besides these essential anatomical changes there are also accidental ones, partly in the alimentary canal, partly in other organs.

Respecting the treatment Chomel remarks, that no one method, even the rational, has adapted itself to the forms and periods of the disease, or obtained a decided preference to others in regard to the result. He goes through the old evacuating, antiseptic, exciting, stimulant, weakening, contra-stimulating, and antiphlogistic me-

thods. He then directs the treatment adapted to the different forms. In the inflammatory he advises strict diet, venesection, leeches; in the bilious acid form, also, venesection, but not vomiting, and seldom purging; in the mucous form, bitters and weak aromatics; in the ataxic, tonic means; in the adynamic, strengthening remedies, as cinchona, wine, camphor; in the perforation of the intestine, large doses of opium and entire rest, (the English method of Graves and Stokes).

But this is only his theoretic rational therapia. He now employs, in preference to others, a remedy recommended to him by a pupil, (but first applied in Ireland by Reid,) the chloruret of soda. (It is our liquor natri chlorati. It is also found in the Pharm. Hanov. as Labarraque's liquor, with directions for preparing it, and for its employment as a disinfectant. Chemically, it resembles the chloride of lime. It is sometimes improperly translated in German as kitchensalt.) He gives this in the French manner, as a potion in sirop de gomme, about one and a half grains to the ounce, and allows sixty ounces to be used daily; ten to twenty-four drops in a potion, and the remainder, as far as possible, applied in other modes, as clysters, cataplasms, bathing, sprinkling the bed, and placing bowls containing the solution under it. He considers this as opposed to the tonic remedies, but does not express himself clearly in what class he arranges it, or how he explains its operation; whether it is antiseptic or antimiasmatic, or whether the ulcer of the intestines is immediately cured by it. At all events it is distinct from the free chlorine in the aqua chlorata, which is recommended in Germany in abdominal typhus. He applies it only in severe diseases, and only in the first and second stages. The five first patients for whom he tried it were all cured, while among fifty-one others not treated with it, one of three died; afterwards, among fifteen treated with the chloruret the deaths were two only. After this the proportion changed, and in spite of his application twelve of thirty-seven died, or one in three. Another method of treating typhoid is that of Piedagnel, who pretends to have controlled the severity of the disease by frequently repeated cathartics, by the operation of a glass of seidlitz water daily with strict diet. He has in this way lost but one in fifteen patients. This is confirmed by Delaroque, in the Hospital Necker. Fouquier, in la Charité, gives alum from twenty-four grains to a dram daily, in emulsion, in a julep, or in pills. Bouillaud terms his practice rational; but, as an especial adherent of Broussais, places leeches in abundance on the sensible part of the abdomen. Here again we see the fault which is so often committed in French medicine; it looks for a remedy for a given disease, and, disregarding the peculiarities of the case, is often unable to assign a reason why the treatment fails or succeeds.

Chomel himself must be willing to concede that he is not wholly clear in the comprehensiveness which he assigns to the idea of typhoid fever. In describing it he gives almost a complete pyretology. In his early essay "On Fevers and Pestilential Diseases,"

he came out as an opponent of Broussais. But Broussais himself says, that in this may actually be found a confirmation of his doctrine; that his adversaries, Chomel and Bretonneau, in their typhoid fever or dothinerite, have exactly described his gastro-enterite, with typhous symptoms, produced by affection of the brain, and that the circumstance of the mucous glands being especially prominent in their cases, is of little importance. But as Chomel has now determined to stand by his early defence of Pinel's essential fever, he makes the following distinction; that the glands of the mucous membrane do indeed exhibit inflammatory signs, but that the severity of this affection is not proportionate to the general symptoms; that there are cases in which no lesion of the alimentary canal can be discovered, (this is said also by Andral and Louis); that he regards the inflammation of the intestinal glands as secondary, and that the original disease may be a concealed affection in the nervous system, or in the fluids of the body. We see, therefore, what could hardly have been anticipated, Chomel labouring to escape the imputation of adherence to Broussais. But how vague the jurisdiction of typhoid fever every one must be sensible. For the rest, Chomel regards it as contagious; and in 1834-5 many young medical men sickened and died of this nervous fever.

ANDRAL.

The public are already acquainted with Andral's *Pathological Anatomy*, his *Clinique Médicale*, his *Essay on Vitality*, published in 1835, and at this moment his lectures are making their appearance. He was about thirty years old when chosen professor of pathology in the faculty. The large lecture-room is always filled, when he officiates, not with students only, but likewise with older physicians; and he always commands attention, when speaking in the academy. As his doctrines are peculiar, and constitute an epoch, they may be termed a school. Especially is he the man, who, although the author of an excellent compend of pathological anatomy, has divorced science from localism and materialism, and directed attention to vital properties. If the ancients generalised too much, and the moderns have carried localisation to an extreme, Andral has the merit of uniting the merits of both. He divides diseases into organic and functional. It is impossible, he says, to form to one's self a perfect representation of disease; but, however this may be, the solid parts and the blood are the inseparable elements, and, in turn, the cause and the effect of their mutual changes. Accordingly, he treats in his lectures first of the diseases of the solids, then of those of the blood. Of the former, there are five classes—diseases of the circulation, secretion, nutrition, innervation, and function. These, together, constitute the local diseases. Each organ reacts on each other, and the extension of disease is effected either through the circulation, through innervation, or sympathy, which last is not explained by the two others.

So much for his theory. But he is equally distinguished as a practitioner. As he does not so easily admit an inflammatory condition, he is more guarded in the employment of leeches. He is of opinion that the stomach may be the seat of a series of morbid conditions, not of inflammatory nature, and which, being of various kinds, demand various treatment; conditions which, not yielding to antiphlogistics alone, require narcotic means, tonics, excitants, antispasmodics—as rhubarb, gentian, cinchona, iron, zinc, bismuth. He has also, very properly, restored emetics and cathartics to their former consideration. He has proved, that the salts, calomel, jalap, aloes, and croton oil, are not so prejudicial as had been imagined in France. There is, in fact, even now to be remarked among the French, a certain naïve wonder at the operation of these articles, when they show themselves useful in headache, neuralgia, catarrh and suffocation, measles and scarlet fever.

He has also made numerous experiments with other especially new means. He employs chlorine in phthisis—with little effect indeed—iodine and hydriodic acid, iron and alkali. He also applies the contrastimulant method, with its large doses of emetic tartar, acetate of lead, nitrate of potass, aconite, digitalis. What is most worthy of remark, is the still increasing wonder of his countrymen, that the mucous membrane of the stomach and intestines will bear this treatment.

Let us once more briefly consider the present condition of French medicine and therapeutics. The French physician, who visits the bedside of a patient, treats him according to the following method: he first, with a perfect knowledge of anatomy, divides his body into the various systems of Bichat; admits, more or less, with Broussais, that one of these is suffering from inflammation; what the character of this is, what its seat, how great its extension and degree, he investigates with all his senses, especially by touch, and with the aid of auscultation and percussion, with a degree of accuracy in which Louis is a pattern; then directs abstinence, more or less mild remedies, antiphlogistic and revulsive treatment; and if death ensue, he investigates, by pathological anatomy, how far his diagnosis was correct, in conformity with the ample instructions of Andral, Curveilhier, and many others.

The part of the diagnosis which can be established by dissection, the recognition of organic alteration, is carried to a surprising extent. Its perfection springs out of their especial fondness for post-mortem examinations. On these examinations reposes all the pathological anatomy of the French. They have little interest in preparing perfectly and preserving pathological discoveries or representations of normal anatomy. Neither the museum of the school of medicine, nor the Dupuytren museum, founded the last year, is yet sufficiently extensive. Their materials are fresh cases. Their great object is to see structural changes immediately connected with the history of the sick, for the attainment of which, the numerous deaths in so large a city, and the little opposition made to their being opened, afford abundant opportunity. Their sense,

however, of the importance of collections, which afford a general view, which preserve singular cases, and make the more frequent, at least in part, more evident by careful demonstration, is proved by the Dupuytren museum, to which Orfila, the dean of the Parisian faculty, is still preparing a rival at Clamart, the great place of dissection at Paris. Skill and exactness in opening bodies can hardly be carried farther than they are in France. Though we do not find that the knowledge of normal anatomy is greater among Parisian than German students; although in their preparatory exercises they trust too much to themselves, or to their manuals, of which that of Hippol. Cloquet is most approved; and although the applications, especially that to surgery, are neglected, yet have they the advantage in pathological anatomy. Their claim to the invention of those useful instruments, the rachôtome, the enterotome, &c., is well known. A body is sometimes opened in front, sometimes behind or on the side. Thus, in a patient who died of scarlatina, with angina, the head was divided from above downwards, to the breast and thoracic viscera; and in a case in which urethritis had existed, the pelvis and the urinary organs were opened sideways, and the urethra and bladder neatly slit up.

The treatment, the ultimate object to which all this medical science should be considered as auxiliary, appears in France to be in a great measure subordinate to it. That the doctrine of Broussais admits almost no internal remedy, is well known. The English long since said to the French, that they permitted their patients to die, while the French charged the English with killing theirs. When you hear the prescription in a French hospital, you are astonished equally at the severe regimen and the absence of medicine. A quarter of a portion, a loaf, a soup, decoction of rice, syrup of gum, frequently form the nourishment, or rather the vehicle of the remedy. Then there are regular potions, tisanes, liniments, decoctions, cataplasms, pills, frequently bearing the same name in different hospitals, while their ingredients are varied, such as calming potions, potions béchiques, spasmodic potions, &c. Remedies which do not demand a small or very exact dose are taken in the form of a particular drink. The patients are kept so low, that those with chronic diseases often entreat the physician, while he dictates his prescription for the day, for another quarter portion, or an additional loaf. Nay, they actually have often pain in the bowels, caused by hunger. The quantity of potions, too, which are administered, cause disgust, so that more cures are effected by this means and by hunger, than by the remedies employed. On the other hand, lavements of various kinds are in very frequent use—as purgative, laxative, astringent lavements, camphorated belladonna l., oxymel l. Since, as above remarked, each hospital has its peculiar compositions, it is impossible to follow the prescriptions without consulting Ratier's formulary (*Formulaire Pratique des Hôpitaux Civils de Paris*). In this work will be found a large collection, a small proportion only of which are used at present, generally the mildest, and those which

have been tested by long experience. Every French physician is at least so much controlled by the doctrines which Broussais has so earnestly inculcated, that he always regards the alimentary canal as in an irritable state, and laments to find himself compelled to abstain from the more active internal treatment. When the neutral salts, or calomel, or opium, or antimonials, are used, it is commonly only by way of experiment, and the preference, which for a time is conceded to one, is soon transferred to another.

French pharmacy deserves much credit for its elaboration of the recent discoveries in chemistry. Medicine has availed of these also, and not unfrequently with good effect. In this, however, again appears evidently the great fault of French therapeutics. It seems, in fact, to spring out of a national defect in character—a want of comprehensive and enlarged views. The Frenchman sees the individual fact, but seldom remarks its relation to other facts, and can with difficulty imagine himself placed in a new combination of circumstances. As this is the cause why he finds it so difficult to form a correct idea of the peculiar traits of other nations, and why he is so little successful in forming friendships with foreigners and colonies in other lands, so is it among physicians the cause of a therapeutic defect. An impression which once takes possession of their minds, is applied to all cases of disease, without being modified to suit their respective peculiarities. Accordingly, they repeat the same general theories, and reapply the same remedy to the same disease, although circumstances may render it much less appropriate; and when, in estimating the effects, they find them not always favourable or unfavourable, they mistake or overrate some new recommendation, and readily change one mode of treatment for another.

It would seem, farther, that they not only overlook treatment in their zeal for diagnosis, and lose the special in the general character of the disease, but that they too often forget the person of the patient; they work rather for the conquest of the disease than the restoration of the individual; in fine, they neglect the general constitution of the body in seeking the locality of the affection. They will continue to draw blood from their pale and starving patients, when a more rational view would teach them so to direct their treatment, as to counteract the debility of the whole system.

We may venture, then, to pronounce the opinion that French medicine stands distinguished in anatomico-pathological diagnosis, but falls behind in therapeutics. It is evidently at this moment neglecting the end for the means, or, in seeking its end, has in view the disease rather than the patient.

RICORD'S EXPERIMENTS AND PRACTICE IN THE HÔPITAL DES VENERIENS.

Few medical travellers will visit Paris, without seeing Ricord in his service at the Hôpital des Vénériens, where he so willingly
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communicates on the subject of his new observations and his surprising experiments. As the accounts which he has given of these are scattered in separate journals, and a collection of them, under the title "*Mémoires et Observations par Philippe Ricord*," 1834, neither presents them complete nor accurate, partly in consequence of the want of full information in regard to them at that time, an abstract of his results will be given here.

These results relate to the syphilitic poison, especially as communicated by inoculation; to blennorrhœa from the parts of generation, the diagnosis of which has been much improved by the use of the speculum vaginæ; and to the treatment.

Inoculation with matter taken from syphilitic ulcers, bubos, or discharges from mucous passages, has thrown much light upon the dark points in the nature of the disease. It is performed on the same subject in another place, best on the inside of the leg, and the occurrence of a pustule, its course and form, determine the nature of the affection. Ricord takes pus or purulent mucus, and inserts it with a lancet under the epidermis. Twenty-four hours afterwards appears a slight redness and rising of the cuticle; the second day the point is still more prominent, is surrounded by an areola, and assumes the conical form of a small pimple, with a dark point of dried blood on the extremity, the effect of the inoculation; the third day, the epidermis is distended, with a little semi-transparent yellowish serosity, and forms a pustule; the fourth day, this assumes a rounded form, the black point is sunken in like an umbilicus, the areola gradually loses its lively red; the fifth day, the circumference of the base of the pustule is somewhat swollen and hard; the sixth day, the matter thickens, and the pustule dries under a crust which forms concentric layers. This crust remains a longer or shorter time, and, when it falls off, exhibits an ulcer, which has all the characters of a primary syphilitic sore or chancre. There were generally three insertions made, and either all took or none, never one alone. If they go on, and form in the manner above described, they prove the syphilitic character of the primary sore; in the opposite case, they prove either its non-syphilitic nature, or that the infection has become a lues secondarily or consecutively. Inoculation has shown that, after five to seven months, chancres and bubos still retain their syphilitic character. As matter of infection, was taken the discharge from chancres on all parts of the generative organs, in both sexes; the matter of urethral blennorrhœa; the discharge from the vagina, uterus, and anus; from bubos in various stages; from papulæ, pustules, tubercles, and ecthymatous eruptions; from sores of the cervix uteri; of the lips, cheeks, throat; of carious bones; and of various morbid growths. On the other hand, venereal subjects were inoculated with the matter of scrofula, herpes, acne; with the discharge of cancer and of gangrene. Ricord considers chancre a perfectly characteristic symptom of syphilis; as decisive and as specific as small-pox or cow-pock. It comes from a specific virus, the action of which is uniform and regular, and can be reproduced at pleasure

by inoculation. The bubo following on chancre, is either sympathetic or idiopathic. In the last case, it is a gland chancre (ch. ganglionaire), identical with chancres, and can by inoculation produce a chancre again. Ricord has arrived at the conclusion that gonorrhœa has a distinct character; syphilitic infection produces only a sore; and if inoculated blennorrhœa takes the character of syphilis, there must be a concealed sore combined with it. Blennorrhœa never develops chancre. Farther researches, especially if instituted by others, promise more satisfactory and extensive results. The conclusions of Ricord are confirmed by A. Thompson, an Englishman, who for a long time observed with him, and shared and perfected his experiments. (See Lond. Med. and Surg. Journal, 1833, Oct. 26.)

At the same time with Ricord, but independently of him, Wallace, in Dublin, carried on similar investigations and experiments. The accuracy of Ricord's observations has been called in question by Rattier, an externe of the hospital. He himself regards his investigations, as brought before the Academy of Medicine in July, 1833, as still inconclusive, and has not adopted them into the collection of his published works, above noticed.

Ricord has invented an excellent means of examining the female organs in his speculum vaginæ. It is a great improvement on those of Recamier and Lisfranc. That of Lisfranc is a simple hollow cylinder; that of Ricord is a cylindric instrument, of copper covered with tin, which is split lengthwise, and by means of a joint in the middle, allows the front and back edges to separate and come together. Two handles keep it in place, and a screw determines the degree of separation. In the application of this instrument, one is taken by surprise on discovering that a complete examination may be made of the internal female organs. The whole vagina, and the mouth of the uterus, are by it brought plainly into view. In the bottom are often found ulcers remaining, although those in front were healed, or excoriations, fungous growths, and enlarged mucous glands, which kept up the discharge, or it is ascertained that blennorrhœa of the uterine mucous membrane exists. On Tuesday, which was at once the day of reception and of *polyclinique* for women, might be seen in the Hôpital des Vénériens, the application of the instrument to thirty individuals in a single day. They are laid on a high bed, near the edge, the feet sustained on two stools. While two fingers hold open the labia externa, the speculum, covered with cerate and closed, is introduced lightly and quickly, unless great sensibility or a hymen prevent. There is seldom any pain felt or even pretended. The two handles are now pressed together in front, so that the opposite ends separate and discover the canal. A light is held before, and the spectator sees the os uteri as plainly as can be desired. If menstruation is present, the discharge is seen exuding by drops from the slightly swollen and reddened os tincæ; an occurrence on which Osiander, who accidentally witnessed it in consequence of a procidentia uteri, congratulated himself as a

rarity. Deviations from a healthy state are often detected in this way, and it is not only easy to determine their character, but to apply remedies, to make applications solid or fluid, and even, by means of a peculiar syringe, to throw injections into the uterus.

Treatment.—In primary ulcers, Ricord touches the sore with caustic, in order to change its character to that of a simple ulcer. Mercurial means constitute the favourite practice in cases where obstinate sores refuse to yield to other treatment. An unusual hardness of the edges is the usual precursor, when secondary symptoms are to be developed. Ricord imagines that quicksilver proves a specific in a number of cases of secondary symptoms, but that it rather removes the effects than the cause. Some cases prove wholly intractable without mercury. Those cases, in which mercurial means are indicated, heal by these means more quickly than by any others, though generally capable of being cured otherwise. In secondary syphilitic symptoms, mercurial remedies form the rule, antiphlogistics, sudatories, revulsives, the exception.

In consecutive affections, he gives the proto or deuto-ioduret of mercury. He considers mercurial salivation as a consequence of a peculiar inflammation of the palate, tongue, and gums, which he terms mercurial stomatitis. The salivary glands are attacked only secondarily. There is both an acute and a chronic form, and on the last he lays particular stress, as it may interchange with syphilitic affection and with mercurialism, of which last it may often be the commencement. In bubos, he applies poultices of iodine, and has made some successful trials with blisters. In gonorrhœa, which, according to him, as above mentioned, is not identical with syphilis, he first commences with antiphlogistics, then gives cubebs and copaiva, then injections of lead, zinc, (acet. zinc 3j. aquæ 3x.) or lunar caustic (nit. arg. gr. j. aq. 3j.); warts are removed by the scissors, and excoriations behind the glans after gonorrhœa are destroyed with potass. In the blennorrhœa of women, he makes injections of nit. arg. gr. j. aq. 3j.; but as these seldom penetrate sufficiently, he applies lint, soaked in a solution of acet. plum. 3ss. to ℥j. water (eau blanche), and in chronic cases of double this strength. This mass of lint is renewed daily or twice a day; but if the mucous membrane of the vagina has a pale relaxed appearance as of unsound granulations, he applies in the same manner a mixture of eight or twelve parts of water to one part of the liquid acid nitrate of mercury; (R. hyd. nit. 3j. ac. nit. 3j. M., which is a caustic solution applied by Jules Cloquet and Recamier to ulcers and to cancer,) allows it to remain from ten minutes to an hour, and then substitutes the above leadwater.

Sometimes, after introducing the speculum, he touches the excoriated parts of the uterus with a sponge, moistened with the above caustic, and fastened on the end of a staff. In blennorrhagy of the uterus, when a large amount of tenacious, glassy mucus comes from the os uteri, he makes injections of the acid mercurial solution into the uterus. He uses for this purpose, a peculiar syringe which contains two fluids. He injects the solution first to

the amount of about a tea-spoonful, allows it to remain a minute, and then sends in warm water. The injection first creates heat and slight pain in the part, which pass off without ill consequence. The majority of three hundred patients thus treated, required three injections in eight days. With this plan Ricord has been much pleased. If the mucus is small in quantity, thick and tough, this is not always to be considered disease, as it may happen through catarrh. The speculum shows the redness of the os uteri, but this colour is not necessarily morbid, especially when the parts are distended by the instrument, as the lips of this organ are always red within. Small syphilitic sores or granulations on the os uteri easily bleed on being touched, and must, therefore, be discriminated. The *carunculæ myrtiformes* must not be confounded with fungous growths. After syphilitic affections of the throat, there may be some sensibility of the part for years, which is not to be removed. Removing the tonsils is useless, and is sometimes followed by increased secretion of mucus. Men of anxious temperament, thus affected, always consider themselves sick.

He terms the lighter form of discharge, *blennorrhœa*; the severer, *blennorrhagia*; the severest is the folliculous *blennorrhagia*, in which the mucous glands are hypertrophied. A *blennorrhœa* may be contagious, that is, communicate the same disease to another individual. The view taken by Ricord is, that many individuals have little susceptibility, or that two can accustom themselves to the disease in each other, so that a communication takes place once, and nothing follows afterward. This he calls *acclimation*. When two persons are physically uncongenial in this respect, you often hear him give the advice to change husband, or wife. On Tuesday, numbers of women come to him, perhaps preparatory to marriage, to convince themselves by means of this famous speculum of their own freedom from disease; and on Saturdays, men attend in the same view. Among them are persons who cannot be made to believe that they are not affected with syphilis; they labour under *syphilomania*. How far the speculum *vaginæ* is applicable to private practice, each one can judge for himself; but its use is very instructive.

PHRENOLOGY AND ORTHOPHRENY.

It may be a matter of surprise, that phrenology, which first made its appearance in Germany, as *cranioscopy*, or the science of the skull, and was afterward taught and discriminated by Gall and Spurzheim, in France, England, and America, should have been wholly given up in its native country. This indifference is the more remarkable, when it is considered that many other German notions, of much less plausibility, find favour and success at home. The history of the extension of this doctrine by Spurzheim, is such as would reflect credit on the soundest science. In Paris, London, Edinburgh, Dublin, and afterward in America,

which he visited, he overcame powerful opposition and gained distinguished adherents.

There is in Paris a phrenological society, which counts at least Broussais, Andral, and Bouillaud among its members. In England there are several, and one in London, having Elliotson for president, while Carmichael in Dublin, and Mackintosh and Combe in Edinburgh, profess themselves believers. The society in Paris publishes a journal, the "*Journal de la Société Phrenologique*," conducted by a committee, the chairman of which is Dr. Gaubert, and Dr. La Corbière is editor. This has now reached its fourth year. Broussais, this very year, has delivered lectures on phrenology, at which the number of auditors was so large that the hall could not contain them. There must, therefore, have been more than fifteen hundred present.

Phrenology now is no longer the simple doctrine of Gall, from which we derive benefit only for the anatomy of the brain. While it holds out as its object the anatomy and physiology of the brain, in their relation to the soul, it is at the same time a physiological doctrine, and a philosophical system. As a physiological doctrine, it rather explains the anatomical condition from the phenomena of the soul, than determines the physiological phenomena from the organic constitution; but, at all events, it arrives at its conclusions by collecting particular facts. The doctrine has the peculiarity, good or evil, that it is sufficiently popular, attractive, and intelligible, to amuse and interest the mass. Ladies are zealous phrenologists, and you find in London many a parlour ornamented with a phrenological bust. It is not, indeed, applicable to any practical use in common life, because, as its partisans freely admit, it is not sufficiently complete. It passes from anatomical structure immediately to mental phenomena, without especial regard for physiology. Whether it contributes any thing to medicine, especially to the pathology of the nerves, while it opposes itself to the physiology of the nervous system, now so zealously pursued, is a question.

Joubert, in Lyons, published a book in 1835 under the title, "*Prodrome d'une Nouvelle Doctrine Médicale*," and in this is found the following account of it. According to him, each apparatus (appareil) in the body consists;—1, of a part of the brain, which furnishes all that there is in its functions of the intellectual or instinctive character; 2, of a part or several parts of the spinal marrow; 3, of the external organs. In applying this to the respiratory apparatus, he makes this to consist; *a*, of a place in the brain, a cerebral organ, which suggests the necessity of breathing, and judges of the quality of the air in contact with the nostrils; *b*, of the part of the spinal marrow, from whence the respiratory nerves take their rise; *c*, of the external organs of respiration and circulation. He places this cerebral organ in the cerebellum, and terms it respirability. It is evident that in this way the two doctrines are not destined to coincide.

The Parisian school, however, admits at present in all, thirty-

seven mental peculiarities, and cerebral organs to correspond. These are either affective or intellectual. The affective consist of eleven propensities (penchans), and twelve feelings (sentimens); the intellectual of twelve percipient (perceptives), and two reflecting (réflectives). The Edinburgh school varies this arrangement.

Materials for the improvement and confirmation of the science are furnished by investigation of certain well known characters, distinguished for good or for evil, and whose peculiarities are matter of history. We find it announced, in connection with the organ of firmness, "great in Gregory VII., Charles XII., Richelieu, Napoleon, Casimir Perrier, La Mennais;" under veneration, "great in Robert Bruce and Raphael, wanting in Dr. Hette, great in Walter Scott, Benjamin Constant, La Mennais, Lamartine; little developed generally in the French;" in form or configuration, "great in George III.," whose remarkable recollection of persons is well known. Sometimes an impartial investigation discovers a coincidence with the occupation of the individual, but not always. The science, however, does not profess to be perfect, and even the busts and heads exhibited are not all perfect examples. Some years since, M. Voisin commenced the application of his art to the living. In 1828, he obtained permission to pursue his investigations at the Bagnio at Toulon. He found there three hundred malefactors, thieves and murderers, mixed; but among them were distributed twenty-two condemned for rape, and his undertaking was to discriminate the last. Silently and before four witnesses, he felt for the organ of philo-progenitiveness in the back of the head, and thus detected, not indeed all the twenty-two, but thirteen of the number. There remained nine, in regard to whom he had deceived himself. The result, with which he might reasonably be contented, is published in the *Jour. Phren.*, for Jan. 1835.

Orthophreny.—Although, as above remarked, phrenology is hardly ripe for application, one individual has been found sufficiently confident and enterprising, to apply it to the education and treatment of those depraved in mind. Felix Voisin has had, since 1834, an orthophrenic establishment, where by moral means, both internal and external, he attempts to do that for the understanding, for the development of the affections, and for the correction of dangerous propensities, which others have done for (other) personal deformities. Thus far he promises only, but has brought nothing to pass. He divides the children, who require orthophrenic management, into two classes:—1. Idiots (*enfants nés pauvres d'esprit*) with a conformation of brain below the usual average.—2. Children with sound cerebral organisation (*nés comme tout le monde*), but whose minds are perverted by defective or false education.—3. Those with unusual organisation (*nés extraordinairement*), in whom a disproportion exists between the good and the bad propensities, which he raises or depresses in their organs.—4. Children with propensity to alienation, to mental perversion, and to other nervous diseases, especially through hereditary influence. He has adopted in his own sense the expression of Descartes, "that if it

is possible to perfect the human race, the means of so doing are to be found in medical science." He is the physician of epileptic and idiotic children in the Hospice de la Rue de Sévres, and has a private insane institution in Vanvres, while this orthophrenic institute is situated at Issy, fifteen minutes' walk from Paris. Last year it contained from seven to nine individuals. He says, that he places his establishment next to that of the Abbé de l'Épée. That such an establishment should meet with opposition was to be expected, and accordingly it has been denounced by the celebrated Le Mercier, in the academy of sciences. Others, again, agree with him.

As a philosophic system, phrenology is not exactly to be termed materialism; it should be regarded only in a psychological view, and, thus viewed, is not without value as a means of collecting observations. It stands on neutral ground in the eternal contest between body and soul, at least so far as to embrace the termination of the corporeal, and the first commencement of the spiritual. One thing must be conceded to the phrenologists, that none better explain the otherwise inexplicable difference of opinion, when similar arguments on both sides are presented to all; how the same array of evidence may produce acceptance and rejection, belief and disbelief. They point to the organs on which depends the disposition to both; it is with them organic conviction, organic doubt; if this view of the subject is repelled, they point again to the organs of the two opposite propensities; it is still organic credence or organic scepticism.

In reflecting on the soul and the brain, we have at least no other organ or means for the purpose, than precisely these. So with our eyes we can see all else sooner than the eye itself, with a hammer we can strike, but not the hammer, and Archimedes acknowledges that, in order to move the world, a point must be found exterior to it.

CHAPTER IV.

ENGLISH MEDICINE.*

Character of English medicine—Application of mercury, venesection, purging—Other therapeutic views and practice—Influence of climate—Rheumatism of the heart—Hay fever—Bathing places—Quacks—A letter; the opening of a mummy—Homœopathy in England—Oxford—Sea sickness.

A little philosophy adopts prejudices, a fuller philosophy rejects them again. One seems to meet these words of Bacon every where

* In this chapter, as also in the sixth, I have made such use of a journal, which my father kept during a visit to England and Scotland, in 1814, as my purpose to present only what was new would permit. That the materials of that journal were then prevented, by unfavourable circumstances, from being presented to the public eye, is a subject of unfeigned and deep regret to me.

in England. They seem to form the fundamental axiom of English medicine, which less than any other forgets its practical purpose; which rejects every thing that partakes too much of theory, or that contains more theory than experience justifies and practice renders necessary. Hence the English are excellent cool observers of whatever is a subject for observation. But while they aim to draw only immediate and necessary conclusions, they reject that part of medicine which does not admit of these conclusions, and yet is deserving of further examination. They cultivate, as it were, only the tractable soil, from which they can derive an abundant harvest, neglecting wholly the more ungrateful and difficult tracts. The field, which they thus leave fallow, is that of speculation; but, as far as that of practice extends, there are no better observers, no better describers, and no better managers of disease than the English. As this, however, is not all, they must still be regarded as defective in their medicine, while it is harder to find any fault with their surgery.

If it was remarked of French medicine, that the therapeutic department falls behind the others, we must here say, that the cure is especially kept in view as the most important object, and that they are eager to reach it by the shortest route. The few theories, which the English have had, were the three of Scottish origin, of Cullen, Brown, and Darwin. Cullen's theory was properly, as a whole, rather a systematic order of diseases; the two others together, have never taken such deep root in England, as the Brunonian alone in Germany. Besides this, the great merit of English medicine consists in the application of facts to practice. Sydenham's practical experience, the inoculation of small-pox, the discovery and application of cow-pock, cinchona, calomel, colchicum, the use of citric acid for scurvy, and various other therapeutic experiments, establish their claims on this score. This direction of their energies grows naturally out of the national character of the English. The philosophy of their own Locke exhibits every where a sound logic. Bacon urged the acquisition of knowledge by experience, and Jeremy Bentham is recently extolling the principle of utility. Even now, we can remark in English medicine no dominant theory. The English are careful to distinguish accurately what they can expect to find by their researches. This cannot be better expressed, than as Abercrombie terms it, when he advises to seek "the generality of a fact." They collect cases, and thence deduce conclusions. Their literature places diseases in view in distinct treatises, and these monographs, which are compiled from single authenticated cases, form together a whole, resembling a gallery of excellent paintings. The descriptions of disease by English writers are true to nature, clear and unembarrassed; their short reflections are striking and appropriate, and they go directly to the point. Their value will readily be appreciated by any one, who has had occasion to study a scientific subject in foreign authors. The practical physician finds in them trustworthy, and, what cannot be said of our

German literature, which is rendered uncertain by differences and dark by illustration, truly refreshing studies and guides. These are traits which the author confesses so captivated him, that he should have been tempted to inordinate commendation, had not the judgment of older observers, and a second reading of the remarks of Steiglitz, which terminate the second volume of his pathological researches, "on the peculiarities of English medicine at the present day, and its influence on nervous fever," brought back to his recollection the worth and the necessity of prudent speculation.

The pathology of the English rests in part on physiology and anatomy with the associate sciences, but principally upon therapeutics, which form not only its aim and object, but literally its basis. English medicine does not reason both forwards and backwards; it forms conclusions *ex juvantibus et nocentibus*; it is a science which is resolved to become wise by experience. Pathology in its whole range is not well treated by them, but for the management of particular diseases and symptoms, the English have rendered great service to medicine. Hence, while their general therapeutics are confessedly open to criticism, their special therapeutics are in many instances excellent.

In lecturing, the teachers adopt as the basis of their arrangement the nosology of Cullen, or that which is given in the *Study of Medicine*, a very clearly written and much esteemed work of Mason Good, or that contained in Gregory's *Conspectus Medicinæ*. But as there are no leading speculative views, and as the doctrines of single schools are not made public, it is not possible in describing English medicine, as may be done in regard to that of other countries, to observe it from general points of view. Cases, monographs, and individual views, must all be separate and distinct. The conclusions and deductions which are made are so short, that they seem like threads not long enough to be woven together to form a texture. In reviewing English medicine, there is no pathological doctrine to illustrate, as in France, but certainly more therapeutic means to mention. Accordingly, in place of theories or methods, we have to remark in this connection on three leading therapeutic means, mercury, purging, and blood-letting; and these may be considered a little more at length.

It is not easy in English medicine, to find out the precise virtues of remedies, their *modus operandi*, or the grounds on which they are selected. Frequently the principal reason given seems to be, that the remedy has done good in other cases, and therefore it may be expected to do good in this.

Mercury is given either in large or small doses, and its use is to be distinguished accordingly. In large doses, the only preparation employed is calomel, in small doses the protoxide in the form of blue pills. Of the use of large doses of calomel, I find a full discussion by Robert Graves, in the *Dublin Physical and Chemical Journal*, No. xvi. Dr. Graves is a physician of the new English school, of high character as a lecturer, practitioner, and critic.

He recommends the medicine, whatever may be the seat of inflammation. According to him, blood-letting takes the first rank, and calomel the second, in the treatment of inflammation. He gives it in the dose of a scruple, twice in the twenty-four hours, or according to the urgency of the symptoms. The object is to mercurialise the system, so as to effect a change in the capillary circulation and the secretions. This treatment demands certain precautions. The patient must take no cold drink, but every article warm; oatmeal gruel without lemon juice is the ptilan which Dr. Graves recommends, and of which the patient must take but three pints daily, because excessive drinking overloads the stomach, and produces mercurial diarrhœa. In most cases, he regards the use of mercury in small doses as injurious, and rejects as dangerous the treatment with blue pills. According to his observations, salivation, in place of augmenting the fever, has the contrary effect. He can assert, he says, that if the fever is occasioned by inflammation, as by pericarditis, pleurisy, &c., calomel will, nine times in ten, at the commencement of salivation, produce a marked diminution of the inflammation and retard the pulse. He has never seen any evil consequence follow upon calomel, in those cases where its use has caused a sudden and complete disappearance of severe inflammation. The same remedy cannot be at once useful and injurious to the constitution of a patient. If the mercury relieves the inflammation, it causes no detriment to the animal economy.

The confidence in large doses of calomel in inflammations and congestions is great and extensive. There are few individuals who have not at least once been thus treated, yet few voices are raised against the remedy. Its use threatens to be somewhat curtailed by the late non-mercurial treatment of syphilis, which, since its adoption by Carmichael, finds many adherents. I find, however, upon enquiry, that this new practice is not followed in the large London hospitals, neither in St. Bartholomew's, nor St. Thomas's, nor Guy's, nor the Lock hospital, nor yet in Stephen's at Dublin. In all these calomel and opium are administered.

Some explanation of the principles of the mercurial treatment is given by Wilson Philip, "On the Influence of minute doses of Mercury." London: 1834. His immediate purpose is to recommend the use of small doses, but the work also contains a physiological view, and a rational account of its *modus operandi* in general.

According to this author, the operation of mercury is twofold, local and general. The general operation on the whole system takes place partly by means of the nerves of the part to which it is applied, partly through absorption and circulation. By absorption, it exerts the greatest influence on distant parts, because it comes in immediate contact with the various organs, and acts directly upon them, more or less as a stimulant, exalting their functions. To the alimentary canal and the salivary glands, it is also evidently a stimulus, even when applied to the skin, and this

irritation may pass into inflammation, if not immediately relieved by increased secretion. Thus, mercury, along with its stimulant, exerts also a demulcent operation. But by this power which mercury possesses of promoting various secretions, we can effect only a transient and imperfect relief, for a check of the secretions is but a secondary effect of the disease. It must, therefore, have another effect, and this is exerted upon the liver. On this organ, the remedy not only has a specific power to exalt its functions, but also to correct various functional abnormalities, and to affect the structure of the organ itself, in a degree in which it can act on no other organ, and in which no other remedy can act upon this. Now the sympathy between the stomach, liver, and duodenum, is so great, that whatever benefits or injures the one, must affect the others in like manner. Again, whatever affects the digestive system, must have an influence on the disease, for scarce a deviation from health occurs in which these parts are not concerned. Farther, one of the great causes of the influence of the digestive system, is its sympathy with the brain. This directly influences the action of the heart and its vessels to their smallest ramifications. The secerning and assimilating processes are entirely dependent on it, and on the spinal marrow. If such are the conclusions we obtain respecting the use of the liver *à priori*, they are abundantly confirmed by observation. In the most important diseases, local and general, the function of the liver is more or less disturbed, and on the condition of this organ the treatment indicated more or less depends. Hence it happens that in warm climates, where the sympathies are so active, affections of this viscus are a leading circumstance in acute and chronic disease. Dr. Philip has, consequently, for many years adopted the custom of examining the region of the stomach and liver, in every case, as carefully as the pulse.

The operation of small doses frequently repeated is, according to Wilson Philip, of great practical importance. According to his experience, the quantity of quicksilver usually given, however useful the article may be occasionally in large doses, is, on the whole, at least ten times greater than is necessary to develop its beneficent operation. Its favourable influence upon the liver has enabled physicians to give it in too large quantities. He explains the innocence of twenty and thirty grain doses of calomel, by the rapidity with which they are conveyed out of the system. Of the united stimulant and reducing powers of mercury, the former preponderates in small doses, the latter in large. He now obtains decisive benefit from a single dose of mercury, as from a half to one eighth grain of blue pill. This is the protoxide, obtained by rubbing down the regulus of the metal with chalk. The methods of preparation are various, but the London process is the best. The hydrarg. oxyd. cinereum, which is so produced, contains of quicksilver 96.16 parts, of oxygen 3.84. Eight grains of blue pill contain three grains of the protoxide, of which the usual dose is one to three grains. But the full benefit of the medicine is said to be

realised in the small dose above mentioned. The cause of its powerful action, is the absence of aperient effects. It is fully absorbed into the general system, and, as it causes but slight irritation, is not eliminated therefrom. It is by maintaining this constant general influence, that it is made to work upon the gums and produce salivation, while large doses often fail. It must be remarked also, that one half grain of blue pill is estimated equal to one twentieth or one thirtieth grain of calomel, for one grain of calomel is equivalent in aperient and alterative power to ten grains of blue pill. Thus far Wilson Philip.

Salivation is, therefore, desired and kept in view by English practitioners, while we, except where peculiar views are adopted of the treatment of syphilis, always regard it as an evil. The East Indian physicians, however, are the greatest advocates for the mercurial practice; indeed, this Indian origin of the practice might be almost surmised, from the importance which is there attached to the liver. But the great authority for the use of the protoxide is Abernethy, who is especially celebrated for his attention to internal treatment in surgical cases. Abernethy exercised a very great influence on the surgery, and almost as much on the medicine, of his time. His great maxim was, subdue local irritation, and regulate the action of the digestive system, and you control all controllable diseases. It was well known that he was particularly successful in the treatment of chronic disease. His means for the purpose were to a great extent these same blue pills. Their reputation is that they do not disturb the stomach and bowels, that they operate gently, and "bring all in order again."

In Germany, we do not use this famous protoxide. The gray mercurial ointment is much recommended: but Plenck's merc. gummosus has vanished from the pharmacopeias.

In close connection with the use of mercury is

The purging method.—When the English especially wish to mercurialise, they add opium to the quicksilver, but frequently the object is to move the bowels also, and then they leave out the opium. At the same time with Abernethy, a system of practice was adopted by James Hamilton, a physician and professor at Edinburgh, whose book on the use of purgatives, gained him many adherents. Among the extensive agencies which the English ascribe to mercurial remedies, it was natural that they should adopt them as derivative means; and in fact both calomel and blue pill are employed in this view. Sometimes, however, they employ other aperients, either in combination with these, or alone. They add salts, for example, in order to act on the intestines and kidneys, as well as the liver, and for this purpose often give calomel in the morning, and salts in the evening. The other aperient means are the epsom salt, with an addition of sulphuric acid, colocinth, castor oil, croton oil, rhubarb, and senna. To keep the bowels open is a leading maxim, and it is to be remarked, that in no country are the conveniences for this purpose so great, as they are found in a neat English water closet. English and

French medicine have, therefore, this in common, that both recognise the great importance of the digestive apparatus; with the distinction, however, that the latter takes rather a pathological, the other a therapeutical view of it; one regards it as the seat of the disease, the other as a medium, through which to act curatively upon it.

We farther remark how important an object it is to the English to promote the secretions, those of the intestinal mucous membrane, of the kidneys, skin, mucous glands, and liver.

Blood-letting.—As the great authority for recommending copious bleeding we may mention Armstrong, and we are assured that nearly three fourths of the English practitioners follow him. They hold the human system to be so constituted that it can bear a considerable loss of blood. They advise in attacking inflammation to withdraw the blood as rapidly as possible, and for that purpose to make a large opening in the vein. If the blood flows slowly, the vessels have time to place themselves again in relation to the diminished volume of this fluid, and therefore the intended “shock” to the whole system does not follow. In order to be sure of this, blood is drawn to commencing deliquium, and as this takes place sooner in the upright than in the recumbent posture, this circumstance is always taken into the account. Even in chronic inflammation, bleeding is much depended on.

Caleb Hillier Parry, in his *Elements of Pathology*, published in 1815, recommended blood-letting for almost all affections. This writer, however, has not obtained a great reputation in England. In consequence of the independence of the English of any leading pathological view, and of general pathology, many individual plans of practice arise which do not become general, some of which are extremely singular, and should rather be reckoned as curiosities. It is superfluous to say more on the subject of blood-letting. The latest writers on the subject, Marshall Hall and J. Wardrop, have been mentioned above, and the latter is still an enthusiastic partisan of the practice.

Mention must still be made of some peculiar circumstances in English medicine. Together with the above-named and especially debilitating remedies, other therapeutic means, intended to promote the restoration of the strength, seem to exist in undue proportion. The application of cinchona, of port wine and opium, which was so common forty years since, and to which C. Fisher alludes in his *Med. Chir. Remarks on London*, 1796, has indeed ceased to be carried to so great an extent. On the other hand, the invigorating treatment of the English practitioners now consists in giving nourishment, which both in quantity and quality surpasses that allowed to a patient in France. For light diet the patient receives in the hospitals a quarter of a pound of meat, a half pound of bread, and a half pound of potatoes; for fever diet, tea morning and evening, and at noon a half pound of bread, or an allowance of sago. Sometimes beef-tea is also permitted, which is a weak broth prepared from the infusion of beef cut in small pieces; chicken-tea is a still weaker

preparation. The medical means for restoring the strength in "typhus mitior" or "gravior," are more limited than in Germany. The English have in fact many authorities for bleeding in these affections, especially Armstrong. But when the object with them is to support the system, they give more stimulating, or, as they call it, antispasmodic articles, than our nervines. Although they do not reject valerian, arnica, and serpentaria, they prefer giving wine, quinine in place of cinchona, musk, ammonia, the ethers, opium, and, what is original with them, arsenic as a tonic. Camphor can hardly be reckoned among their stimuli, for camphor mixture is often chosen as a vehicle for other medicines. They make little use of the laxative extracts and neutral salts. Among the remedies peculiar to them may be mentioned the famous James's powder, which still maintains its place as an unexplained preparation of antimony, carbonate of iron, oil of turpentine, chlorine, cold applications. Great influence is also ascribed, and with reason, to traveling; and change of air is a prominent remedy of the English physicians. Some new medicines have been particularly tried by Elliotson, formerly at St. Thomas's, now at the University Hospital. He has used creosote in phthisis and epilepsy without effect, but he regards it as decidedly soothing in rheumatic neuralgia not of inflammatory character, in hysteria, and palpitation. It removes nausea, and prepares the way for other remedies in enteritis and colic: in diabetes it promises something, and has acquired reputation for external application to relaxed ulcers. Iodine has been praised in affections of the glands, and in secondary syphilis with mercurial symptoms, or in a state in which it is difficult to discriminate between the two affections, it is evidently and peculiarly beneficial. Within a few years the water-proof caoutchouc has been employed to form what are termed water-beds. The water is in place of a bedstead. On it lies the caoutchouc stretched and floating, while the patient is on a matrass, prevented from galling by the ease with which he turns and by the coolness. In the London Hospital from seven to eight such beds have been in use for four years; they cost six to eight pounds each.

Not a little attention has been attracted to Stevens's researches on the blood, his suggestion that the red colour of arterial blood is not due to oxydation in the lungs, but to its containing salts, and his consequent treatment of cholera and other diseases by saline injections into the veins. His book has not thus far found much favour, though he is not wholly without converts. Besides him, Marsden has found this method effectual in restoring the circulation. The liquid injection is composed of muriat. sodæ 3 iij., carbon. sodæ 3 iij.ss., oxymur. potass. gr. xv., aquæ lb. iv. In children under fourteen, 32 oz., in adults 48 to 80 ounces are sufficient to restore the circulation.

I must once more notice the present direction of enquiry to the physiology of the nerves. Its application to pathology may be found in small memoirs of Sanders, Griffin, Teale, and John Marshall; in the larger and more important work of Travers "On

Constitutional Irritation," vol. ii., 1835 ; in H. Mayo's "Outlines of Pathology," 1835 ; and Marshall Hall "On the Nervous System," 1836.

Foreign medicine and the views entertained abroad are becoming better known in England. French practice is most esteemed, and much of it has been adopted. The journals contain fuller accounts of French literature, and it is common for physicians and surgeons to pass a certain time in Paris. Auscultation and percussion are becoming widely known, and form the subject of some original works by Stokes, Forbes, Williams, Hope, and Davies. Even the doctrines of Broussais are, not indeed wholly admitted, but yet, as by Stokes for example, more directly approved than elsewhere out of France, and their correct views at least are constantly extending.

German medicine is much less known. The difficulty of the language is complained of: those who have learned it in Germany easily forget it again: and even the classic works written in Latin are not regarded. This ignorance is now about to cease. Robert Graves in Dublin is known as being versed in, and a judge of, the medical literature of Germany. The latest proof, however, of the interest taken in it, is furnished by the appearance in 1836 of the British and Foreign Medical Review, or Quarterly Journal of Practical Medicine and Surgery, published by J. Forbes and Conolly.

Medical pathological anatomy has been seasonably and attentively studied. Baillie, who was closely connected with John Hunter, laid the foundation ; and Farre followed him. That it has not since been neglected is proved by the museums, and by its recent cultivators, Abercrombie, Bright, Hodgkin, Carswell, and Kiernan.

It seems proper here to take some notice of the climate and diet in England, especially as connected with the large doses in which the practitioners there give medicine. The luxurious vegetation and mild climate of England are well known, and might be suspected from the dark evergreen of her fields and shrubs, and from the success even of tropical plants in the open air. Another circumstance is the fogginess of the island, surrounded as it is by sea air and immersed in dampness from the same cause. These circumstances exert a very beneficial influence on the physical condition of the animal economy. Both animals and men appear well nourished. The sea air and labour sharpen their appetite, which is satiated on the strongest animal and vegetable food, so hearty and condensed that a continental European of the best appetite finds it immediately extinguished by their soups, their dishes of meat, and their malt liquor. An English constitution is, consequently, in its vegetative character, peculiarly massive, the digestive apparatus is, in regard to chylopoiesis, to assimilation, and to all its processes, in a superior condition; it can bear, and it requires, a decidedly active medical treatment. The frequent dyspeptic affections and complications make gastric management and depletion especially needful. Soda and seltzer water are favourite digestives, and the

above-named means are the remedies indicated. The large doses which appear so remarkable are thus accounted for, and extend themselves, as we shall see, fully to the gastric remedies. Epsom salt, for example, which is directed in our pharmacopeia in doses of a dram, is given in London practice to the extent of three or four. These influences of climate and diet appear still more evidently in other facts. Thus an Englishman on the continent experiences an excessive operation from his dose of neutral salt, but on his return home is compelled to return to the customary quantity, in order to obtain the usual operation; and a German resident in England requires perhaps a double dose of the laxative carried with him. During my stay in England, I made no trial of the kind on my own person. I regret that I had not then thought of instituting some experiments which could have been carried on without any inconvenience.¹ The same is true, however, of other remedies, and among the rest I have been able to observe this remarkable influence of climate and diet in the use of opium. Wine, too, is borne in much larger quantities, before it evinces its stimulating property.

It is these atmospheric and endemic circumstances which make England the land of gout, of gravel, of aneurism, consumption, rheumatism. If gout is rather found among the richer classes, rheumatism is far more frequent with the poorer. Labourers commonly carry a piece of sulphur in the pocket as a preservative against this disease.

RHEUMATISM OF THE HEART.

A disease of which you hear much said at present in England, is rheumatism of the heart. One may easily infer the frequency and the severity of rheumatism in this country, when he learns that the result has been here clearly attained that half of those affected with acute articular rheumatism have affection of the heart. Such cases occur particularly in the hospitals, because the class of patients there found are particularly exposed to dampness and to changes of temperature. The cardiac symptoms, however, are of a kind that easily escape observation, partly from the severity of the rheumatic pains in other parts, and partly because they are little regarded by the patient himself. The means of recognising the affection are furnished by auscultation and percussion, sometimes by these alone. It was in England that the connection between rheumatic fever and organic disease of the heart was first remarked by Pitcairn. The observation was confirmed by Dundas, Wells, and Odier in Geneva. Lately it has been noticed by Latham, Elliotson, Hope,

¹ During my last year's stay in England I have made at least one experiment of this kind. I prepared a dose of epsom salt and senna, (sal. amar. ʒj. inf. sen. c. ʒj. aq. font. ʒiv.,) and took one third part twice in the evening. It had some effect on the consistence, but none upon the frequency of the stools. I have since repeated the same quantity in Hanover, and always obtained a decided operation.

Davies, Abercrombie, Stokes, and Watson, and lastly in France by Bouillaud.

The nature of the cardiac affection consists in the series of organic changes, of which inflammation is assigned as the cause. The parts of the heart which, on dissection, exhibit traces of inflammatory action, are the membranous parts, as the pericardium after pericarditis, the external and internal surfaces of the organ after endocarditis, the lining of the ventricles, auricles and valves, and likewise the muscular substance which Bouillaud divides into two, the inner stratum which promotes the movement of the valves, and the outer which effects the contraction. If the external casing of the heart suffers, there follows effusion of serum, deposition, adhesion; the membrane is thickened, or becomes rough and shaggy on its internal surface. In endocarditis the inflammation is mostly limited to the valves, which become thickened and less transparent, especially the fibro-cartilaginous parts of the valvulæ mitralis and semilunaris, and most frequently exhibit wartlike excrescences, very similar to syphilitic condylomata. Hypertrophy is one consequence of the affection of the muscular substance; other consequences are mechanical, as distention. Such are the appearances discovered after death, which of course vary in degree, according as the fatal result follows sooner or later.

Rheumatism of the heart is called a very fatal disease, more on account of its eventual consequences, than on account of its immediate effects, or even the chronic and gradually developed organic changes. In most chronic diseases of the heart there is evidence furnished that the patients have first suffered from severe rheumatic fever. It is on this account that the importance of early discovering the extension of the disease to this organ is so highly estimated. Hence in acute rheumatism the chest must be daily examined, especially by auscultation and percussion, because this affection betrays itself to the ear rather than to any of the other senses. Some suspicion of its approach may be suggested by a strangeness in the manner of the patient, a wild, even sorrowful expression, without verbal complaint, a dirty gray complexion, and a tendency to delirium. On percussion, there is detected an unusually flat echo, and with the ear a peculiar morbid sound; the usual heartbeat is no longer clear, but mixed with a *to and fro* tone, an intermittent screaming as of a saw. This sound remains for some days after recovery from fever, then gradually ceases, or remains constantly, in case an organic heart disease is forming. It is ascribed to the rubbing of the dry and rough membrane of the pericardium. There is also a tone which indicates affection of the inner lining of the cavities, which is deeper, and dependent on the change of the usual relation between the ventricles and the openings of the vessels and auricles.

After this, other general sympathetic affections usually supervene, as palpitation, accelerated small or intermittent pulse, stricture in the epigastrium, short breath, anxiety, dry cough, pain in the cardiac region, increased by pressure with the fingers on the

interstices of the ribs, by deep inspiration, and by lying on the left side, stiffness and pain in the region of the left shoulder, and often under the left arm, breaking off shortly at the elbow or wrist. These signs are seldom all united; were they so, the diagnosis would be easy; hence auscultation, as its indications are constant, affords the surest signs and perhaps the easiest to recognise. Generally both morbid sounds are present, forming a double symptom; but the pericardiac sound is more frequently wanting than the other; pericarditis is more rare in articular rheumatism than endocarditis. It is also to be remarked, that in acute articular rheumatism, when heart affections occur, symptoms not unfrequently supervene which point to cerebral disease. In rheumatic carditis there sometimes occurs delirium or mania, or comatose phenomena or convulsion; so that inflammation of the brain is easily inferred, especially as metastasis is always regarded as a leading characteristic of rheumatism. Dissection, however, discovers no change in the cavity of the cranium, and by directing the treatment against phrenitis, the inflammation of the heart may be wholly overlooked. This happens not only among adults, but even in children. The treatment recommended may easily be imagined;—venesection, leeches to the præcordia, cathartics, mercury with opium pushed to salivation, colchicum.

In France, especially by Bouillaud, digitalis is recommended, particularly its endermic application, in the chronic form, or when the sound above referred to continues. It seems proper here to quote the views of the French on this subject; for it will be found, that rheumatism is only recently discovered to be the cause of heart affections, though the latter have been so especially studied by Corvisart, Bayle, Laennec, Bertin, Louis, Bouillaud, Andral, and Rostan. Laennec and Bayle were of the opinion, that pericarditis was very difficult to detect during life, and they acknowledge that while they have several times suspected it, they were not able to establish the diagnosis. Louis (*de la pericardite*) subjected it to especial investigation, and perfected the diagnosis by paying particular attention to the flat sound on percussion, and to the projection of the præcordial region, and uniting these symptoms to the commonly received one of pain, which is wanting in half the cases, of irregular, rapid, intermitting pulse, palpitation, dyspnoea, fainting, and œdema of the extremities. As respects the frequency of the disease, he has, according to his statistic or numerical method, examined the dissections recorded by Morgagni, and among them numbered 1263 cases, in which the condition of the heart was examined by dissection, and has among these found 70 adhesions of the pericardium, proving that at some previous time this membrane must have been inflamed. In the post mortem examinations made by himself, which are 443 in number, he has found the signs of disease of pericardium 18 times, or in one of 24 cases. I shall not follow farther his calculations, which, however, extend to the course, anatomical appearances, prognosis, consequences, and even causes. In regard to the causes, it should

be remembered, that he does not reckon rheumatism among them. This cause he did not happen to discover. From this an argument might be drawn that rheumatism, in France, is not so frequent, or so severe, or does not attack the heart; or the same facts might authorise the inference, that the numerical method affords no assurance that every fact is observed. When Louis wrote in 1826, attention had not been directed, in France, to this particular cause. Bouillaud, whose last great work on diseases of the heart appeared in 1835, has especial regard to rheumatism, and still more in a monograph, written in 1836, entitled "*Nouvelles recherches sur la Rheumatisme Articulaire aigu en générale, et spécialement sur la loi de coincidence de la péricardite et de l'entrecardite.*" He asserts that it is three years since he accidentally discovered the coincidence of carditis with acute articular inflammation. At all events, the English discovered it earlier. He makes especial reference to the signs derived from auscultation and percussion. He also found that in half the cases of rheumatic fever, the sero-fibrous texture of the heart, the pericardium, or the endocardium, was also affected during life. His treatment, as might be expected from a zealous Broussaian, is strongly antiphlogistic. He lets blood to the amount of two to eight pounds; and applies leeches or cupping locally. His auxiliary means are blisters, fomentations to the joints, baths, opium, digitalis endermically applied, and strict diet. With this treatment, he reckons the average duration of rheumatism at one to two weeks, in place of six to seven. In regard to mortality, not a single case proved fatal out of 80 patients, treated in this manner, during four years, in his ward at La Charité. He explains both the rarity and the fatality of heart disease, as mentioned by the earlier writers, by supposing that the disease was never recognised, except in cases where it proved fatal.

HAY FEVER.

There is in England a national disease known by this title, a catarrh to which certain persons are regularly subjected in the months of May, June, and July, and which they ascribe to the effluvium of the hay. It is only lately that it has been regarded as an object of scientific attention. Dr. Bostock, in the *Medico-Chirurgical Transactions*, vol. xv., describes it under the title of *Catarrhus Æstivus*: he studied it for himself, and afterward taught it to others. He ascribes it to excessive heat. It is a catarrh with sneezing, headache, weeping, snuffing, and cough. Sometimes there is fever and general discomfort. It does not affect the poorer classes, but only the rich. Bostock finds that no remedy can be depended on, but that it vanishes spontaneously. He has tried with equal ill success, iron, opium, mercury, blisters, leeches, the mineral waters of Leamington and Harrogate, Bath water, and sea bathing, privation of wine and meat, and an improved diet. He now limits himself to small blisters, mild purgatives, ipeca-

cuanha, Dover's powder, squills, digitalis, and cold. A cool residence near the sea is the best remedy. I have seen a case of this summer catarrh. It is singular, that it should attack the same persons for several years in succession about the same season.

WATERING PLACES.

On the whole, medicated springs and baths are not considered of so much importance in England as in Germany. They are both fewer and weaker; the bath-literature of the English is meagre. They have chalybeate water, saline water, sulphuretted water, and a few mineral springs in Scotland. The baths of foreign countries are more esteemed than their own, on several accounts. First it is the fashion, then they are more active, then cheaper, and lastly they involve a journey to the continent, which is held advantageous for many reasons. The old, celebrated, and beautiful Bath, is almost deserted. Cheltenham is most frequented in autumn, and Brighton in winter. These are the directions taken by the world of fashion, when the London season is over, and these are followed implicitly in their movements by the whole body of society in England.

Cheltenham lies forty-three English miles from Bristol, forty miles from Oxford, and nine miles from Gloucester, contains 26,000 inhabitants, and has grown up so quickly, that its population has increased eightfold in thirty years. The visit made to the baths by George III., especially brought it into notice. The saline fountains were discovered in 1716, by watching the motions of the doves, which show that there was some water which remained unfrozen in winter. By degrees all the medicated waters indigenous to England were found here united. Private persons erected accommodations for drinking and bathing, planted alleys and gardens, and the new houses which were built formed at last a beautiful town in a beautiful region. There are now five bathing establishments. They are termed in a general manner, Spa, a name applied by the English to all mineral fountains. The oldest is Old Wells, on the spot pointed out by the doves. The best springs are in Montpelier-Spa, in which name are united two of the most celebrated medical places. This establishment was founded in 1806, by Mr. H. Thompson, who was so fortunate as to find on his ground successively, eighty mineral springs, which he brought together by pipes. The Montpelier-Spa are of six different kinds, and are termed—1. Chalybeate saline—2. Strong sulphur saline—3. Weak sulphur saline—4. Simple saline—5. *a*. Iodine saline—*b*. Iron magnesian saline—6. Saline muriate of soda. All the Cheltenham springs contain salt, except the pure chalybeates. The strong chalybeate spring is the saline and chalybeate Spa in Cambray. The remaining two establishments are called imperial Spa and Pittville, which last is the most recent discovery.

The latest chemical analyses were made in 1832, by Cooper, and apply particularly to Montpelier-Spa. The results of this enquiry

may be found in Scudamore, "On the composition and medical properties of the mineral waters of England," 1833.

As abundance of water of the richest quality is present, it has been undertaken to crystallise the salt : this is done in a very large laboratory. The salt is allowed to settle in small wooden troughs, (if prepared for a hot climate, it is also permitted to effloresce,) then packed in glass, and offered under the name of real Cheltenham salts. They are sent over all England, and many visitors of the baths carry them away to complete their cure.

The waters are partly drunk, and in part used as baths. For the privilege of drinking during the season, one person pays £1 1s., a family £2 2s. The use of the walks and rides costs besides to each person 7s.

Among the baths the Montpelier are the best. In this establishment are twenty-five baths, fourteen warm. The warming is artificial, and is effected very quickly by connecting them with the laboratory above mentioned. A stream of water is conducted under this and comes in contact with a column of hot air, which raises the temperature of the water immediately to 180° Fahr. In this state it flows into a large receiver, from which it is drawn for use, while in the larger baths it is constantly in motion, always ebbing and flowing. The cold baths have a mean temperature of 56°; the largest cold bath measures twenty feet in length and ten feet in breadth. There are also shower baths, shampooing baths so called, douches, hot air and vapour baths. A common bath costs 1s. 6d., a warm saline bath 3s., a sulphur bath the same, and so on. The baths are open from 6 A. M. to 10 P. M.

There are in Cheltenham nineteen physicians, properly doctors of medicine, which is a large number for the population, and twenty-three surgeons, who also practise medicine; (vide chap. x. on English medicine, and its reform.)

Bathing life in Cheltenham has all the family and individual comfort which is usually seen in England. The principal or high street leads through the whole town, by-streets pass right and left, and conduct through alleys to the bathing establishments. The houses are mostly new, and look homelike and comfortable, as English houses always do. The shops and inns are showy. In the morning from 7 to 9 A. M., strangers go to the springs, especially now to Montpelier-Spa. In the great rotunda, they call up and down for numbers one to six, and meanwhile traverse the walks, ladies and gentlemen in morning dress, while a band of music is playing. They then go home to breakfast, for no one breakfasts in public. Numerous equipages, horses, and asses are seen; you also find them to let in the streets, where small chaises with one horse, called flys, are in use, and where little low wagons with three wheels, drawn or pushed by men, are hired by the sick. For the men there are journals, libraries, billiards, races, and hunting. The ladies walk with book in hand, or appear on horseback. By five or six o'clock every one is at home. In the evening, there are musical promenades. A military band, of about

seventeen pieces, plays in the Montpelier garden, from seven to nine. Meanwhile the company are walking up and down on the turf, in parties without any intermixture. This walking in large parties by good music, playing pieces from Handel, Mozart, Rossini, and Irish melodies, always concluding with "God save the king," affords a quiet simple pleasure. Once in the week, there is a ball in the rotunda, which commences about eight o'clock, and where ladies appear in walking dress, and dance in hats. In the assembly rooms is a very handsome parlour, where card parties assemble daily; and balls are given on extraordinary occasions, and concerts occasionally. The theatre is open several times a week.

A master of ceremonies is employed, to promote sociability, and expressly to conduct the balls. The present has now kept his post for fifteen years. He gives yearly two subscription balls for his own benefit. Every guest, on his arrival, inscribes his name in the books of the master of ceremonies, on which the latter waits upon him personally.

Leamington lies near Warwick, is two hours' journey from Birmingham, and ten from London. The small town is nearly new, regularly and conveniently built; the establishments for drinking and bathing are like those in Cheltenham, but on a smaller scale; the country is equally hilly, and perhaps more beautiful. In the neighbourhood are the ruins of Kenilworth castle, so celebrated in Walter Scott's romance, and the wonderful castle of Warwick, well known by Prince Puckler's excellent description. Leamington has also saline, chalybeate, and sulphureous waters. The saline springs are found wholesome in dyspepsia, hemorrhoids, chronic gout, rheumatism, scrofula, swelling of the cervical and mesenteric glands, chronic ophthalmia, old ulcers, and cutaneous eruptions; on the other hand they are useless in stone, white swelling, and rickets. The sulphur springs are frequently used in combination with the saline waters, drank also by dyspeptics, those suffering with disease of the spleen and liver, and especially by persons who have lived in hot climates. The baths are also used in long convalescence from measles and small-pox, after the use of mercury, and in hypochondriasis. The chalybeate waters are frequently mixed with the others. They are recommended in chlorosis, cachexies, dysmenorrhœa, and weakness; they act injuriously in scirrhus, pulmonary disease, plethora; and likewise in constitutions inclined to apoplexy, hemoptysis, all kinds of asthma, cough, and consumption.

Brighton.—The sea, which the English so well know how to prize and to use, plays an important part in their therapeutics. Among the numerous resorts for sea-bathing, the Isle of Wight and Brighton hold a distinguished place. Brighton is only fifty-four miles from London. Whoever wishes to withdraw suddenly from the cachexia Londinensis—that is, from the disgust produced by a large town and its narrowing occupations—flies to Brighton. With its dry air and dry soil, lying near the crowded canal, this town has

a most fortunate position for a sea-bath. The air of the neighbourhood is certainly not so bracing as on the Isle of Wight. The town has about 40,000 inhabitants, and extends itself about an hour's ride along the shore. During the season, the number of residents is almost 80,000. The royal family have for several years chosen this as their winter residence. Here George IV. built a pavilion, a large enclosure with a single pillar, whose cupolas and minaret-like summits make a striking appearance. The town increased in consequence more rapidly, now contains beautiful squares and crescents, and between it and the shore leads a long broad quay. The shore is covered with gravel for about forty paces in breadth; then comes fine clean sand, and a very gradual descent. Fourteen years since, a chain pier was erected directly out into the sea, 1134 feet long; it is at once an iron walk, a balcony, and a landing-place. Parties walk here by the sound of music, and enjoy a view of the whole extent of the town, and of the ever-changing sea with its innumerable ships, which are passing through the canal.

The time for bathing is from early morning till noon, and the bath is taken either in the open sea or in bathing-houses. All the arrangements are conducted by private proprietors, and no particular bath physicians are employed. For bathing in the open sea, two-wheeled cars are drawn by a horse to the proper depth, which is reached very gradually. Each car contains a towel and a glass. The price for the use of them is sixpence. Ladies go into the water in a separate place, and, as they generally do in bathing, wear large woollen bath dresses; they are always accompanied by a female attendant. The bathing-houses, however, are much more used. Of these there are a great number, containing warm and cold baths, both large and small; shampooing baths, in which rubbing and kneading of the skin are performed; shower-baths, and even steam-baths. Subsequent exercise is held to be very serviceable. Numerous parties are seen, about noon, elegantly mounted. In general, even at Brighton, bathing in the sea is but little resorted to; the warm sea-baths are principally employed, and the sea air is accounted very beneficial.

The mode of life is, for the people of quality, a mere continuation of the amusements of Cheltenham or of London. Theatres, concerts, balls, and libraries, are always accessible. Steam-vessels are constantly in readiness for Dieppe, which lies opposite, and for the Isle of Wight. Brighton has no harbour, but the chain pier already mentioned supplies the place of one. Besides sea-bathing, there is found here a mineral spring, a chalybeate water, and recently an establishment for artificial springs has been set up by Dr. Struve, called German Spa, which promises to be successful.

EMPIRICISM.

From the nature of things, quacks find in Paris and London circumstances very favourable to success. The famous philoso-

pher, Dr. Johnson, says that the reason why quacks succeed so well in England is, that nine tenths of the inhabitants are wholly ignorant on medical subjects. The reader will easily call to mind the most famous—as James Graham, who once erected a temple of health, and named himself president of the council of health, (vid. *Travels of Archenholz*); the Chevalier Taylor, “the pope’s, emperor’s, and king’s ophthalmic physician, author of sixty-five works in various languages, and of an art of pleasing, with the most interesting remarks on the power of prejudice;” Solomon, the celebrated discoverer of the balm of Gilead; and Brodum, whose cardiacs for a time were in great repute. There are now in London two charlatans, who are so distinguished as well to deserve mention. One is called St. John Long, the other Morrison. Long practises rather in the higher circles, and cures by a liquid which contains “murderous” irritants. Morrison has his zealous adherents among the lower classes, and his reputation is founded upon pills. Of these he recommends from twenty-five to one hundred to be taken at once. He calls them vegetable universal medicines. They consist of aloes, colocynth, and a strong addition of extr. conij. Analyses, however, have given different results, and it is suspected that they are frequently changed. It has been proved, by legal investigation, that many individuals have been sacrificed to their operation. Yet he goes on practising, and has lately, after conviction of manslaughter, only paid a fine of two hundred pounds, which in comparison with his profits was trifling. But, by making public these unhappy occurrences, the eyes of the people are opened to the character of such pretenders, as has already happened in the case of St. John Long. Morrison exhibits a pamphlet, containing a sketch of his own biography, and asserts that he studied in Germany, and particularly in Henault. After twenty-five years of bodily and mental suffering, he made his fortunate discovery when the whole faculty had failed in curing him. An engraving is prefixed, in which he appears in a fur cloak, whiskers, and a white hat. He calls himself Mr. Morrison, the Hygeist, president of the Society of Health. Among his fundamental principles are these—“Blood makes blood;” “Pain and disease spring from the same origin, and may therefore be regarded as synonymous expressions;” “Diseases arise from uncleanness in the blood, or, in other words, from sharp humours in the blood;” “The humours which injure the body have three sources—the inherited, the contagious, and the personal.”

NOTES.

The 17th June I saw the opening of a mummy, performed as a sort of dedication of the new school, founded by Brodie in Kinnerton street, near St. George’s. The collection was very numerous, crowded, in fact, as a rout, doors and stairs occupied, and the assembly included many persons of rank and of science. The well-known Egyptian traveller, Wilkinson, was present. The

outer box was already removed ; the inner was made of sycamore, and covered with hieroglyphics, invocations to the Egyptian gods in behalf of the dead. The mummy was taken from Thebes, out of the temple of Ammon, and was a lady of rank. It was brought from Egypt by Sir Frederick Fitzclarence, sent to Mr. Keate, the surgeon, and by him presented for examination. The body was thickly and carefully enveloped in cloths, covered with a bright yellow bituminous mass ; their separation could not be effected without the knife ; a yellow dust or mould was scattered about in great quantity by the process, and smelt strongly of resin. At length appeared a dark brown, bronze-coloured form. For 4000 years debarred of her natural decay, she was now again compelled to an artificial resurrection. Every appearance of flesh had disappeared from the skeleton ; the weight was some pounds. On the breast lay a beetle, a round green stone about an inch in circumference ; papyrus was not found. Mr. Pettigrew, a surgeon, and a writer on this subject, delivered a lecture on mummies. The word mummy comes from the Egyptian word *mum*, which means wax. He spoke of the supposed healing power of mummies in the fifteenth century ; how often, on this account, they were taken and counterfeited ; how the money-making Jews gave to fresh bodies the appearance of mummies, in order to sell them by fragments ; and how, as the fraud was discovered, the faith in them gradually diminished. He said he had boiled a piece of mummy three years previous, and that the odour given out was like that of flesh. Insects have been found in the resin of species no longer known.

Homœopathy in England.—On this, as on other subjects, the complaint may be made of the English that they know so little of their neighbours. In fact, until lately, they have paid little attention to the state of medicine abroad. Hence it is that homœopathy at present is taking them by surprise. They might long since have anticipated its approach, and have foreseen that they would as little remain exempt as other countries. It is to be hoped that their conceptions of German medicine will be so far enlightened, as to prevent their judging of its character by this doctrine.

It is three or four years since the first homœopathic physician appeared in London. Dr. Quin, a person of highly respectable character and education, translated some of Hahnemann's writings, and wrote himself in Latin a homœopathic pharmacopeia. Besides him, there are now three or four homœopathic practitioners, themselves Germans, the number of whom abundantly satisfies the demand of the public. Many Englishmen have made themselves acquainted with the doctrine during a residence in France, Germany and Italy. In Paris, especially, Dr. Trotman may be mentioned as an English homœopath. It has lately been extending its influence in England, and one clergyman and one lady have written in its favour. In London it has found adherents both among the aristocracy and the rich tradesmen of the city. The medical societies, at least the London Medical Society, has begun to pay it

some attention. Dr. Whiting, president of this association, has offered to a homœopath to give him an opportunity of trying the system on a certain number of his patients, which offer was declined by the latter, on the ground that he might perhaps be less successful among English than among German constitutions. Dr. Whiting declares that he has himself tried homœopathic treatment while suffering under indisposition, but without any marked advantage. I am not acquainted with any attack upon it from a scientific source. People are content to amuse themselves with comical anecdotes which we all know in abundance, but which are not particularly to the purpose. What will the English say when homœopathic cases are related to them? They will no doubt know how to judge of them excellently well.

Oxford.—When one sees Oxford with its two and twenty colleges, large, antique, quiet structures; where the gardens, with their evergreen shrubs, bushes, and banks, the broad courts strewn with yellow sand, the cells and walks wear the same Gothic character; when one sees all the circumstances inviting to retirement and study, the lofty rows of trees, the dark alleys on the water side, the libraries so well fitted for abstraction and forgetfulness, the painted windows of the chambers where the student may waste the midnight oil and watch the return of day, the costume of the middle ages, fitted to bring to the memory Bacon and Erasmus; one cannot but wish that other objects of science might here fill and employ the heads, which are content now in busy idleness, to pore over the classics of Greece and Rome.

Sea-sickness is caused by the rolling motion of a vessel, and produces the same sort of nausea which is caused by a swing. The whole body is disturbed, as well as the brain and the ganglia. The same sort of disturbance follows when one moves the head rapidly up and down. The proximate cause of sea-sickness is concussion of the brain. There are instances in which, in persons predisposed to the affection, apoplexy of the brain has been the consequence. Sea-sickness is much more frequent in steam vessels, because their lightness offers less resistance to the waves, because the engines produce constant agitation, and because the smoke and air of the burning coals are both calculated to produce nausea. On rivers the motion is too slight to produce any effect. Old sailors often feel sea-sickness again in steam vessels, though the motion of others has long ceased to produce any effect. It can hardly with propriety be termed a disease, for this proceeds, when once commenced, independently of its cause; but sea-sickness is a mere interruption of the usual healthy processes from an accidental circumstance, and these return as usual when this circumstance is removed.

Unprofessional persons have asserted, that after sickness of several days the colour of the skin changes and remains yellow for a considerable time. This assertion is by no means improbable in

itself, for we can easily conceive that after violent vomiting a re-absorption of the bile may produce temporary jaundice.

The proper remedies are those which relieve vertigo—free air, determined will, champagne wine, ham, rum, cardiacs, applications to the stomach, &c. In long voyages and rough weather, however, these are of no avail, and any attempt at resistance is vain and unwise. To repress the vomiting is in fact not to subdue the disease, but only to counteract the operation which is fitted to moderate its violence. It is most advisable to lie in bed, and by placing the head on the pillow, to secure to it a solid position. From time to time the nausea will become more urgent, disquiet and heat extend over the whole body, sweat break out, and vomiting follow. As a means of mitigating the last it is advisable to take a single swallow of water and a small bit of bread a short time before. After the vomiting follow quiet, fatigue, and sleep. After some hours, the same succession of symptoms is renewed, and continues perhaps a quarter of an hour. In this manner a man may pass several days, more or less, according to the length of the voyage and the kind of weather. If the wind lulls, or the vessel nears the shore, the sickness diminishes, and in the latter case even before the land can be seen. The pale faces collect upon deck, the appetite returns, and many experience no ill consequence from the severe vomiting, though some may have to suffer still some days.

CHAPTER V.

FRENCH SURGERY AND OPHTHALMOLOGY.

Wounds—Surgical anatomy—Chirurgico-pathological anatomy—Bandages—Operative practice and medical surgery—Discoveries—Strictures and stone—Lithotrity—Velpeau—Amussat—Ophthalmology and specific inflammation.

In the second chapter, it has been remarked in what relation the doctrine of inflammation seems to stand to French surgery, and how far the general character of the latter seems to spring from the former. Some peculiarities remain to be noticed.

The treatment of wounds demands a less favourable judgment in regard to the mode of effecting union. Cold water is very little employed in the way of fomentation. Boyer does not notice it in his surgery. Some recommendations of this practice have lately appeared, as by Bérard (*Arch. Gen. de Med.* 1835), and it is applied by Sanson, Breschet, and Velpeau. If sticking plasters are used, they are not so neatly spread as is done in England by machinery. But bandages and charpie can hardly be placed on more carefully than the French do it.

The especially surgical relations of anatomy have been less perfectly developed here than elsewhere. Surgical anatomy has few

monographs to exhibit, and in their surgical treatises are found fewer remarks of a practical character upon all the parts which have to be regarded in important operations. From this censure must be excepted the bones in their relations to fracture, the muscles in connection with luxation, and the anatomy of the urinary and genital apparatus, as far as the bladder, urethra, and uterus are concerned, the diseases of which form, at this moment, a favourite subject with French surgeons. Their surgical anatomy is evidently derived from recent subjects, or, as regards osteology, from dry preparations. The great facility of pursuing anatomy by dissection, important as it is, does not unite in itself all the advantages which the preservation, and likewise the fine and accurate exhibition of anatomical structures and conditions, possess. The immediate influence of this in their surgery is manifest in their chirurgico-pathological anatomy; hernias, fractures, luxations, aneurisms, accidental textures, are wanting in France to pathological observation. The student has seldom an opportunity to learn these things in recent preparations, and he will seldom retain their anatomy in his mind, unless he can renew his impressions by frequently examining cases skilfully prepared and accurately represented. Not only is France until now in want of such a collection, but there are few original works in her surgical literature in which pathological anatomy is as well illustrated as in England and Germany.

For a long time the French have enjoyed a reputation in bandaging, which has been increased by Dessault. However the importance of this treatment may hereafter be questioned in regard to wounds, it will probably remain in favour for fractures and luxations. Simple fractures are not splinted and bandaged early, but they wait for the inflammation and swelling to subside, favouring this result by fomentations and rest. The bandage is applied not only with tasteful neatness, but with the greatest care. The old French school, and Roux, employ extension also, but the method of Dupuytren does not include this to the same extent. Patients are seldom dismissed from the French hospitals with simple fractures badly healed. The same may be said of luxations, in which they are generally acknowledged pre-eminent. Such excessive simplicity, however, as Mayor of Lausanne is lately disposed to give to bandages, (*Vid Nouveau Système de Déligation*, Genève, 1832,) by recommending three-cornered towels as sufficient for all cases, and by placing planchettes under the limb instead of splints, is calculated to do more harm than good.

The operative skill of the French surgeons cannot but be acknowledged. It is remarked equally upon the living and upon the dead body. Dupuytren was admired for it. Roux, the follower of Boyer, and the representative of the old French surgeons, operates with adroitness, rapidity, certainty, elegance, and in a truly masterly style. In fistula lacrymalis he is peculiarly expert. He reminded me by his dexterity of my respected teacher, Langenbeck at Göttingen. Larrey is the patriarch of French military

surgery; Lisfranc is remarkable for his new method, and for his ready and bold execution. It is to be regretted, that he has ceased to give operative instruction. Sanson and Velpeau are both young operators, and are to be mentioned among the surgeons whose operations are practised publicly, and can be most easily seen. Amussat is not attached to any hospital. In the operative courses, the student is furnished with abundance of subjects, receives a very full oral and manual lesson on operative surgery, and performs every operation at least twice, and commonly according to several methods. The French prefer to use the bistoury, where we are accustomed to the scalpel; their bistoury is usually of common steel and of pointed form, in order that the edge may be drawn forward in a convex direction. They always push in the director, when they wish to slit up a part, and hold this in the left hand as a guide for the knife, in preference to the forceps. On other occasions, as in removing a bandage, they make use of the dressing forceps. Many instruments are made long, which it might be supposed more convenient to have shorter. Habit no doubt has much share in producing this impression. It is also very easy to exhibit, in the practical course, which of two methods is suited to one and which to the other. There were few, for example, who were not pleased with Lisfranc's flap amputation from within outward, principally because it gives a neat and even cut surface. A very good opportunity is here offered for practice in passing the catheter, both straight and curved, elastic and metallic; advice and direction are given, and the necessary skill is easily acquired. Of the auto-plastic operation, it is already said, that it will command much attention, and will find a large field for its application. It has recently drawn forth a work from Ph. F. Blandin, "*Auto-plastie ou Restauration des Parties du Corps qui ont été détruites, à la faveur d'un emprunt fait à d'autres parties plus ou moins éloignées*," 1836. The visit of Dieffenbach to Paris, in 1834, had no doubt an influence in this respect.

The medical treatment of surgical cases is in part simple, so as to have incurred the charge of carrying simplicity to excess, and in part an application of the Broussaian doctrine. This application is due mainly to Lisfranc, who has brought local bleeding by leeches into most extensive use in surgical cases. An operation is always preceded by *pediuvia*, &c. In consequence of the want of attention to the specific character of inflammation, ulcers are treated without due regard to constitutional circumstances. The German doctrine of ulcers is still unknown. Sometimes relaxing poultices are applied, sometimes chloride of lime, sometimes adhesive plasters, sometimes wax. Cullerier (the nephew) treats syphilis in the Hôp. des Vénériens with quicksilver, generally with the sublimate, in the form of Van Swieten's liquor. Ricord, in the same hospital, uses mercury only for secondary symptoms. In this respect, all France may be considered as divided into two great parties, that in favour of mercury and that opposed to it.

There are, undoubtedly, in Paris, a considerable number of

distinguished physicians and surgeons, among whom an honourable zeal, and an active emulation, are constantly kept alive; but these qualities are, it must be confessed, much more called forth by surgery than by medicine. A new method of performing an operation, or the invention of an instrument, forms the usual basis of a medical reputation. Of these, in fact, there are so many, that the greater part fall again into oblivion, and thus arise fierce contests for the honour of priority. They are communicated to the Academy of Medicine, which usually chooses a commission to examine and report; a lively discussion ensues, and however well they may have sustained the scrutiny, they may be obscured by prejudice, or displaced by some new novelty. Dupuytren used to say, that it was one thing to invent, but a much more difficult thing to bring your invention into use.¹

The subject which now especially attracts the attention of surgeons, is the diseases of the urinary and generative apparatus. Among the latter, Lisfranc has particularly studied the engorgement and cancer of the os uteri, and the speculum vaginæ has led to many new results. Among urinary affections, stricture and stone have been the most attended to. It has even been made a subject of complaint, that when one hears any thing of French surgery at the present day, the principal subject is still these diseases.

Strictures, which twenty years ago were cauterised in England, especially by Everard Home, are now mostly managed in France in the same manner, under the authority of Ducamp and Lallemand. Very various instruments have been imagined for the purpose, an evidence that the practice is not yet wholly satisfactory. The great difficulty is in touching the precise place of the disease. The application of the elastic, and sometimes of the conical catheter of Dessault, has still numerous partisans; but perhaps one might wish the method of bougies to be of more general application. The *sonde exploratrice* is a pencil soaked in wax, which, being made soft, will receive and retain the form of the stricture, and is graduated to determine its depth. The enlargement by incision seems now to be very little used. Mayor has advised to make way into the bladder by *cathéterisme forcé*. He takes conical, more or less pointed, tin catheters, of various thickness, and by gradual application of force overcomes the stricture. Trial of this mode has been made in the Hôtel-Dieu, and in seven successive cases the result was unfortunate. (Vid. Gazette Méd., No. 45.) Besides pain, which for the most part occasioned the interruption of the cure, bleedings, inflammations, abscesses, and other misfortunes, supervened. Happily we have so seldom strictures of the urethra in Germany, that one may pass through several surgical wards in the hospitals without finding a single case.

Stones in the bladder, however, are perhaps the principal object of attention with the French surgeon, especially since the fortunate discovery of lithotripsy.

¹ C'est quelque chose d'inventer, mais c'est bien plus d'en repandre l'usage.

Lithotrity has still a severe contest to withstand, although the most violent opposition has ceased; and would, it is said, have done so earlier, had not Civiale shown more talent for breaking the stone than for defending his own reputation. The first idea of Civiale avowedly was, to destroy the stone by a solvent fluid, and he invented for the purpose a kind of bottle, which was to take up the stone and the liquid. The plan failed, in consequence of the impossibility of finding a material which would resist the fluid while this dissolved the stone. Thénard decided that these qualities could not be combined. Civiale gave up his previous plan and commenced a new one. In order to break the stone mechanically, it was necessary to ascertain that a straight and moderately large catheter would enter the bladder; this he proved on dead bodies and on himself. In making his first two instruments, he still had in view the solution of the stone; his immediate purpose was to break off small pieces, in order to determine their chemical composition. At last he invented the instrument which he now makes use of. It is a straight metallic tube, containing another tube, ending in three elastic arms, which, when drawn back, close by entering the external tube; within is the steel lithotritor, a bar with pointed knobs at the end. This bar is made to revolve by a bow acting on its external end, and thus the points at the opposite extremity grind down the stone. On its application, the urethra shows itself very extensible—a fact which has already been ascertained by its gradual dilatation. At the commencement of a lithotritic operation, warm water is injected, in order to dilate the bladder. Pain is often entirely absent, but this depends much on the sensibility of the passage; it seldom continues, however, longer than the session—that is, for some minutes. Sometimes the patient can immediately return to his occupation, but he does not always come off so easily. Should patients apply at an early period, in place of waiting, as they have been accustomed to do, for fear of the cutting operation, they will have less to suffer. Encysted or enormous stones, or excessive sensibility of the mucous membrane of the bladder, are contra-indications, which, however, are not frequent, and will be still rarer, as they depend on the procrastination of the operation. The whole duration of the treatment is usually short; sometimes it requires three months; six to twelve sessions are requisite. Immediate danger, as of injuring or wounding the bladder, is not much to be apprehended; but unskilfulness, in this as in other cases, may do mischief. Amussat has shown, that the true anatomical form of the urethra is not opposed to the introduction of a straight instrument. It is remarkable, that straight catheters have been found even in Hercules. Later discoveries, however, are directing themselves to the application of curved catheter-formed instruments. Such an one was found in Denmark by Jacobson. A steel catheter consists of two pieces lying on each other, which are separable. The two beaks are bound together by jointed pieces, and when the stone is caught between them, a uniformly increased pressure is made

upon it by means of a screw. Baron Heurteloup adopted this ingenious idea, but left out the jointed intervening pieces, and has formed an instrument, which may be moved to and fro like a shoemaker's measure. On the beaks, the opposite surfaces are set with strong teeth, and while, by striking with a hammer against the upper leaf, this is driven forward, the stone caught between them is broken. An opening in the under plate favours the falling of the fragments. The instrument is called "*Percuteur courbe à marteau*," and for large stones the percussion it produces is preferable. The disadvantages it presents are, that it may break or bend in the bladder; but the first is less to be feared with a hard mass of stone, than in wood, for example; while the latter is prevented by good steel, and by previous trial of its temper. A sudden snapping of the stone is rendered less injurious by the water with which the bladder is filled. In applying it, a solid support is used for fixing the instrument, which is effected by screwing a frame upon the bed; this takes up the middle piece of the instrument, and makes the position of the patient wholly dependent on itself. On this single ground, Dupuytren has not expressed himself wholly favourable to the instrument. Heurteloup, who now lives in London, had, up to 1833, applied the instrument two hundred to two hundred and fifty times. The latest improvements in lithotrity are made avowedly in this instrument, by Leroy d'Etiolle, Segalas, Amussat, Tanchon, Labat, Lestrangé, &c. Its improvement has, in fact, been an object of eager competition. In place of Heurteloup's immovable frame has been substituted a kind of vice, which is held during the operation by one or two assistants. It is of wood, or has in the middle a ball of lead, which embraces the *Percuteur à marteau*, and diminishes the jarring of the hammer. Besides percussion, there is also pression, in which, by means of a screw, the two beaks press the stone gradually together; this is called *brise-pierre à pression*. Finally, the two powers of pression and percussion have been united, and the instrument of Segalas will act on the stone either with the hammer or with the screw. A graduated measure is found convenient to determine the size of the stone by that of the opening of the beaked ends. Meanwhile, Civiale, except in rare cases, holds to his old method in spite of these improvements, and by no means rejects lithotomy, but directs it whenever indicated.

The enemies of lithotrity are Larrey, Sanson, and Velpeau, who are not disposed to have lithotomy sink into neglect. On the 5th of May, 1835, and in the following sessions, a lively discussion arose in the academy of medicine on this subject. Its advocates are now content that lithotrity should be the rule and lithotomy the exception, but the opposers wish to reverse the axiom. The two parties eagerly adduce statistic results and compare numerical returns, though it is conceded that the cases of lithotomy have never been so accurately recorded and collected as is necessary for the purpose of comparison, and it is difficult to say to what extent the lithotritists in giving their returns are unbiased and impartial. At

all events these seem to be constantly becoming more and more favourable. Roux said, on the occasion already alluded to, that he had performed lithotomy five to seven hundred times since 1805, but could find only one to two hundred observations of the cases. Dubois and Boyer would say the same thing. Their general result is that the fatal cases are one to five or six in adults, and one to twenty in children. According to a report which Larrey made upon lithotritry in 1830, it followed that of twenty-four stone patients in the Hospital Neckar, operated on by Civiale, thirteen were cured, and eleven died. Lately, out of fifty-three patients who were there treated, forty-five were operated on, thirty recovered, fifteen died; the others kept the stone. According to another statement (in the *Dict. de Med. et de Chir. Prat.*) there have been two hundred and forty-four patients operated on by Civiale, two hundred and thirty-six cured, five lost, three left uncured. Heurteloup has cured thirty-six of thirty-seven. Lisfranc and Dubois are both for lithotritry, and have indeed both performed the operation on themselves. Lisfranc said before the academy that he had had a stone for eighteen months, which was not recognised, as no other affection of the bladder was present; he read and consulted, and at length convinced himself that lithotritry, at least in the majority of cases, was preferable. He therefore subjected himself to ten sessions, and is now quite well. On this the society expressed their congratulations. Dubois finds himself equally well after the same operation. Sanson acknowledges that if he had a small stone and a sound bladder, though he would not have it done by others, he would operate on himself.

Velpeau, the most determined and perhaps the most powerful opponent, because he adduces his own experiments, and was formerly an adherent, acknowledges that if he had a small stone and a sound bladder he would be lithotritised. Civiale brought forward in the Academy of Sciences, on the 5th October, 1835, statistic returns on lithotomy from the great hospitals of Europe, which gave 5713 operations, 1141 deaths, and 4478 cures; while his own practice furnishes but six deaths to two hundred and fifty-seven lithotrities.

We have however to remark on this contest, that the numerical array of hostile facts furnish no certain result, and are much like reports of battles where each party exaggerates its own bulletin. Meanwhile we may content ourselves that lithotritry is daily more acknowledged as a bloodless method, as less painful, quicker, and yet surer than its rival. It must indeed be confessed, that we Germans, as far as experience goes, are not quite competent judges, since we are so fortunate as to have very few cases among us.

Velpeau has in a few years gained a great reputation. He has written on midwifery, on operative surgery, and on surgical anatomy, not only treatises but classical compendiums, has produced an anatomical and physiological essay on embryology, and several monographs. In the concours he is now for some time accustomed to come off victorious. By his comprehensive knowledge, which

extends to foreign literature, by his industry and accuracy, he makes a dreaded but wholesome opposition to new discoveries, which he subjects to his own experiments, and shows up with logical fluency. Now removed from Pitié to Charité, to take the place of Roux, who has succeeded Dupuytren at Hôtel-Dieu, he has been still increasing in zeal and industry, though in manual expertness he may not yet be counted as one of the first operators. I saw, among others, several new instruments invented by the instrument maker Charrière, applied by him.

Amussat holds every week at his house what he calls conferences. Both French and foreign surgeons are present, furnish and listen to communications, and then hold a free discussion upon the subject treated. Amussat is now busy with the torsion, with strictures of the urethra, lithotrity, reduction of hernias, and his experimental surgery. The torsion of arteries, which thus far has made little progress in France, of which I saw nothing in England, but which finds more favour in Germany, appears, if one sees and practises it with Amussat, in no unfavourable light. He makes use for the purpose, of two forceps. In the left hand is held the forceps which was originally intended for the *refoulement*, with round tips; in the right is held the pointed one, made to close with a slide. With the last the operator seizes the artery wherever it can be seen, draws it out, and holds fast by the end; with the one in his left hand he seizes it crosswise, presses it somewhat together, while by still drawing he lets it slip between the legs, until about half an inch is obtained, by which the inner coat can be ruptured. The left forceps is now more closely approximated, and the operator commences turning with the right, previously closed, so that the artery is twisted to the extent of the interspace between the two. The twisting is continued till the end of the vessel is broken through. The artery is then allowed gradually to retreat. Amussat is still making improvements in the instruments for stricture and lithotrity, especially in applying percussion and pressure. He makes the operation for strangulated hernia unnecessary in many instances by patiently continuing his efforts at reduction for twenty-four hours. Experiments on animals, especially on dogs, form with him a regular branch of surgery, which he terms *chirurgie expérimentale*. He holds the opinion that young surgeons, by operations on animals, gain not only skill but coolness in their calling, and expresses the hope that in a few years these exercises will be recognised as an essential department of instruction in all schools.

OPHTHALMOLOGY.

St. Yves, Janin, Maitre Jean, Gendron, Wenzel, Guérin, and Demours, left the ophthalmic art of the French much in the condition in which it remains at the present time. During the interval this branch of surgery has been nearly lost sight of. No one has been found to take it up as an object of especial attention, and the progress of medicine and surgery has gone on without carrying

this with it. Since the *Bibliothèque Ophthalmologique* of Guillié, which failed after a short time, (in 1822,) no journal has been devoted to this science. Now that the neglect into which it has fallen has begun to be remarked, attention has been again turned to it, at first with some prejudice, on account of its foreign aspect, which will soon, no doubt, be succeeded by a zeal inspired alike by its intrinsic importance, the recollection of the fame of former French oculists, and the eager emulation which exists in Paris. If ocular surgery is no separate branch of our medical science, it was, on the other hand, too much separated in France by the oculists, while by their surgeons, as Boyer, Roux, Dupuytren, it was too little distinguished from general surgery. In this alone lies the otherwise unassignable cause of its neglect. To a certain extent there was a purpose in this; for it was rejected in common with all other medical speculations. At present Italian, German, and English works are translated; Italian ophthalmology has been introduced into Paris by the translation of Scarpa, and by his pupil, Carron du Billards; the German, by Weller's Manual, translated, by Himly's translated introduction to ophthalmic surgery, and by Sichel, a pupil of Walther, Jäger, and Schönlein; the English improvements have become known by a translation of Lawrence. A manual of ophthalmology by Stöber, a Strassburger, but written in French, has appeared so lately as 1834. Among their own surgeons, Sanson, Velpeau, J. Cloquet, and some others, as Rognetta and Robert, are turning their attention to it. Ocular clinics, which before were wholly wanting, have been undertaken by Carron du Billards and Sichel as private instructors, and by Sanson in Hôtel-Dieu. What an amount of ophthalmic disease exists in Paris, and what great results may be anticipated from bringing them together, I was convinced every time I visited Sichel's clinique. But if a still larger clinique, if a separate ophthalmic hospital were erected, and this were filled with the cases which are scattered about unnoticed and unappreciated in this great city; should it be made to contain separate divisions for distinct forms of ophthalmia, and thus to admit of observations, investigations, comparisons, and distinctions, such a picture of the future is not a little calculated to charm the fancy.

After some farther notice of French ophthalmology, I shall proceed to consider a peculiarity of German ophthalmic science, and likewise the doctrine of inflammation in that country.

Roux differs from Dupuytren in his practice in cases of cataract, on which the latter operated by depression principally, while the former in La Charité gave extraction the preference. Dupuytren, unhappily, I had no opportunity of seeing. Roux admits cataract only in spring and autumn. From the moment of their reception the patients are put upon a course of preparatory treatment, as is the especial practice in France before great operations, frequent pediluvia are ordered, and on the morning of the operation a blister is placed on the neck, which is afterwards kept discharging. Enlargement of the pupils is rarely a part of the preparation. The

patient seats himself on a stool; the other eye is covered with a compress; the head leans against the breast of an assistant who lifts the upper lid with his finger, while he makes pressure upon the inner angle of the socket against the eye. The operator draws down the under lid, and likewise presses his finger against the inner angle, to prevent any motion of the eye in that direction. A knife resembling Richter's is employed, and the cut is made in a downward direction. After cutting the cornea, the eye is closed; the curved needle serves to open the anterior wall of the capsule; it is then withdrawn, and by means of a small spoon pressure is made downwards on the under lid against the ball, whereby the lens is half rotated, the upper side turns forward and slowly makes its way out. If there are two cataracts to operate on, the second operation is done immediately. Directly after the operation the eyes are bound with a broad compress and a heap of charpie, over which a black silk bandage is fastened with pins.

Among the new instruments, the nasal catheter of Gensoul, at Lyons, is worth recommending. It causes some surprise to observe how easily the catheterism of the nasal canal is effected by this instrument. It is of hook-like form; the terminal part, bent to a right angle, is about an inch long, corresponding to the distance of the inferior opening of the nasal duct from that of the nostril, and likewise to the form of the canal, with a slight spiral curve. It is carried into one nostril, while the handle lies perpendicular on the upper lip, close upon the bottom and external wall of the meatus narium inferior; the operator now finds himself with the point of the catheter before the opening of the canal; a slight turn outward, and a gradual raising of the handle allows the point to slip in, and with little assistance the instrument rises of itself, and by observing the lacrymal sac on the dead body the point is seen to project, and the skin to be raised. The handle now comes to be directed perpendicularly upon the upper lip. If the point is once conceded, that in consequence of changes in the nasal canal a mechanical dilatation may become necessary, this method of reaching the canal from below is at all events the best where the object is to avoid the operation, and the uncertain method of finding the passage from above, which is the secret dread of many an oculist. Even injections, which as local means in diseases of the mucous membrane of the nasal duct frequently appear very desirable, can, by means of a canula formed in this manner, be applied with little difficulty, and it is easy to see how even a catgut thread can be applied in this way. The advantage is evident, and the application of this nasal catheter exceedingly easy. I have not only been with the instrument from subject to subject, and every where introduced it without failure, but have several times done it upon the living body without producing any considerable sensation of tickling.

Velpeau has lately tried and recommended the application of a blister laid over the whole eye. It does not avail in all inflammations of the cornea, but is of great use in acute affections of the

conjunctiva and sclerotica. The mode of applying it is this. It is well to rub the skin over the lids beforehand with linen dipped in vinegar. The plaster must be large enough to cover the whole surface of the orbit; the lashes and brows need not be shaved. It is laid on the closed eye, and lint and a bandage are placed above, to cover and fill the hollows. The next day it is taken off, and the wound washed with warm water. It heals in two to three days, and by this period the symptoms of inflammation have generally disappeared.

Carron du Billards, an alumnus of Paris, is more favourable to depression and reclination than to extraction, and he has regard to the especial indication for each. In his treatise on the operation of cataract he gives a learned view of all the methods, together with their appropriate terminology, to which one must become accustomed, but which the French call tedious and "græcobarbarous." He is attached to cauterisation with potash, especially in scrofulous and catarrhal conjunctivitis and corneitis.

Sichel, the German oculist, has published "General Propositions on Ophthalmology," &c., 1833, as an introduction to a special work on rheumatic inflammation of the eye. He gives in this a short view of the fundamental principles of German ophthalmology, somewhat coloured by the Schönlein theory of morbid life, which has gained him no small notoriety.

Velpeau, whose mind, as observed above, is turned in every direction, has carefully watched this new movement in ophthalmology. When, in March 1835, he entered La Charité in place of Roux, and there commenced the surgical clinic, he expressed, in the first clinical lecture, his individual views somewhat at large on various subjects. It was on one of these occasions that he took up the subject of ophthalmology. I have never had one so favourable to notice the peculiar character of French medicine and surgery. He said it was becoming a favourite object with some, to introduce the ophthalmic treatment of England and Germany into France. He admitted that in the eye, as in the rest of the body, distinct anatomical symptoms ought to be separately considered in regard to inflammation, especially as its vessels are furnished from different trunks, the conjunctiva, for instance, receiving branches principally from the temporal and frontal arteries, the sclerotica from the ophthalmic. On this ground he distinguishes a conjunctivitis from a scleritis, an iritis from an inflammation of the capsule. He went no farther however in discriminating the membranes and textures of the eye, and seemed to embrace all affections of deep-seated parts under the name of "Ophthalmie interne." Again, he admitted the influence of constitutional disease in ophthalmia in general; but held that the form of the ophthalmic affection was determined only by the anatomical nature of the part attacked; and that the character of the internal disease exerted no influence upon it.

SPECIFIC INFLAMMATION.

A peculiarity of medical surgery, or of the doctrine of inflammation in Germany, is the extensive reception and progress of specific inflammation; and what is now to be said on that subject will connect itself with that which was remarked in the second chapter on the doctrines of inflammation in France and England. The term specific inflammation is applied to the peculiar condition of an inflamed part, as dependent on constitution, and on location. The view taken of this condition must be twofold. In the first place, we see an inflammatory process combined with a special constitutional disease; secondly, we admit a relation of the particular anatomical system affected, as well as of the anatomical form of the parts inflamed, to the nature of the general disease. In this local character may be traced pathognomonic symptoms of the specific internal disease. Specific inflammation, therefore, is that which, standing in combination with constitutional or qualitative disease, is thereby determined in its seat and form, and thereby makes itself known.

As respects the first branch, the constitutional cause, it is not overlooked in England, or in France, but still not recognised to the same extent as in Germany. The English distinguish specific from common inflammation; they call the former healthy, the latter unhealthy. They divide it into two kinds, that occurring through a particular state of constitution, and that occasioned by the inoculation of a poison. Among the specific diseases are reckoned gout, scirrhus, scrofula, gonorrhœa, syphilis, &c. The French, so far as they follow the Broussaian doctrine, can admit no specific character of inflammation; they are directly opposed to this doctrine as to an *entity*. Broussaian inflammation differs only in degree, and knows no qualitative distinction. As respects surgery, in which the specific local cause comes to light most evidently in its local consequences, we well know the little attention which, either in France or England, has been paid to it, especially in the view taken of ulcers. In these cases, it is admitted that the continuance of the same local symptoms must be ascribed to the same general causes, and these have been divided into idiopathic and sympathetic. We do not here refer to the admission of the dependence of local on constitutional affections, of which there is no want in England, as the memory of Abernethy testifies, nor in France, but to distinctly marked characters of the forms of disease, appearing locally, but belonging to a specific disease. These forms are not so well distinguished elsewhere, as in Germany.

The second branch of the doctrine of specific inflammation, to wit, the seat and form of the disease as determined by its specific character, and the diagnostics thence drawn, appear to be much more within the exclusive domain of German science. The English and the French have recognised it in syphilitic ulcers, the characteristic form of which they have distinguished; witness the

labours of J. Hunter, Carmichael, Cullerier, and lately Ricord ; and likewise in diseases of the skin, where they have so perfectly distinguished by their form the inflammations of the different tissues. Cutaneous diseases have been distributed into natural classes, according to their specific characters, by Willan and Bateman, by Jenner, in treating of cow-pox, by Bielt and Rayer, and by Alibert, in his "dermatoses." In regard to ulcers, local character is less regarded in these countries, at least as a basis for diagnosis. We find them rather classified as simple, inflammatory, fungous, callous, putrid, ulcerated, carious, and specific ; and Everard Home classifies the latter, in the English spirit, according to the remedies which cure them, as quicksilver, hemlock, salt water, potass, arsenic. If farther, the relation of the locality to the disease is remarked, as the location of syphilis in the throat, of scurvy in the gums, cancer on the under lip, lupus on the nose ; and the fact that gout, rheumatism, scrofula, syphilis, &c., occasion local injury is not wholly overlooked, still this specific character is very imperfectly apprehended in ophthalmology. The case is different in Germany, where the improved state of ophthalmic science has advanced the knowledge of inflammation, and especially of its specific character.

German ophthalmic science does not require any further illustration for Germans ; but as I cannot but hope that this work may find some English or French readers, I shall speak in reference to the progress it has made, and to its connection with specific inflammation. Richter and Beer not only improved the science of ophthalmic disease ; their improvements went much farther ; they not only taught the pathology of the eye, but diffused a better knowledge of pathology generally. As the eye, which was called by Beer a microcosm in the macrocosm, is composed of a great collection of organic tissues, which in the rest of the body are more scattered, as the serous, mucous, fibrous, lymphatic, vascular, and nervous system, as also of structures peculiar to it, as the cornea, iris, choroid, retina ; farther as it is also an external organ, and by its transparency exposed to view ; and, lastly, as it maintains extensive sympathies with the whole body, it is fitted above all to afford illustration of the local and general, anatomical and physiological, normal and pathological, medical and surgical conditions. What was exposed so plainly to the senses, imbibed not too much of German speculation, but just enough of German solidity and sagacity. In fact, the Germans, on the subject of the eye, have pursued that path which the French have followed in regard to the whole body with the exception of this organ. To the eye the Germans applied Bichat's distinctions in general anatomy : here they applied the name of catarrhal or rheumatic inflammation, to what in the lungs or joints had been merely termed catarrh or rheumatism ; and recognised cataract and other organic lesions as consequences of inflammatory action. They farther observed, as did the English, the local relations of the inflammatory process ; saw the injection of the serous vessels, observed the pro-

cess of traumatic inflammation after wounds with the knife, and chose for their treatment the true antiphlogistic method taught by English surgery. But, besides the anatomical relations in the pathology of inflammation, they discovered much of the operations of the whole system, and of the nature of specific disease. A score of years since, there were to be found in the ophthalmic writings of Richter, Beer, Schmidt, and Himly, excellent discriminations of the different diseases of the eye. The last named, my respected instructor, has, besides traumatic, the following ophthalmias: catarrhal, rheumatic, arthritic, variolous, rubeolous, scarlatinous, scrofulous, syphilitic, impetiginous, menstrual, hæmorrhoidal, scorbutic, intermittent, infantile, Egyptian. The descriptions given of these, show very clearly their character, and their relation to the different tissues, but less perfectly their essential variety in form. Surgery has borrowed the doctrine of specific inflammation from ophthalmic disease, and applied it especially to ulcers. Thus arose the helcology of Rust. Here we went a step farther, and added the discrimination of the form and structure of local inflammatory affection, according to its specific character; and so perfect were the distinctions found, that we were enabled to find in the form itself the means and material of a specific diagnosis. The doctrine necessarily followed, that all organic affections, by their seat and external form, afford characteristic phenomena, by which may be recognised the character of the specific disease in combination with them. This is acknowledged as an axiom in Germany. But, as other conditions exert an influence on organic structural lesions and their external form, not only in ulcers, ophthalmias, and cutaneous diseases, but in accidental tissues; as there are to be considered the normal character of the tissue, which is the seat of disease, the stage of the disease, the strength or weakness of the constitution, the means employed, the age of the patient, season, &c., and as these particulars are not always obvious to the senses—the diagnosis thus formed can never be so clear as to enable us to infer the presence of other symptoms.¹

The improvements thus made in surgery, and in the doctrine of ulcers, have reflected back upon ophthalmic science still greater specific discrimination, and at present we have for every form of inflammation of the eyes, not only an accurate description of the local phenomena, of the seat, appearance, colour, figure, the course of the vessels, &c., so as to be able to distinguish the disease by its specific character, but duplicate combinations are adopted, as catarrhal-rheumatic, catarrhal-scrofulous, &c., and conclusions are formed from the existence and form of certain small vessels in regard to the internal condition, as in Jüngken's abdominal vessels in the conjunctiva.

¹ Of these circumstances, I have spoken more fully in my dissertation, which appeared in 1833, under the following title: *Ad parasitorum malignorum, imprimis ad fungi medullaris oculi historiam, symbolæ aliquot.*

If now we observe the doctrine of inflammation in Germany, we shall find that, in the attempt to embrace all, the peculiar merits of the French and the English are neither unknown nor unavailed of. Neither in medicine, surgery, nor ophthalmic science could we have reached our present views, which we venture to consider as making an approach to truth, had we proceeded in the path of examination alone. In regard, therefore, to the important doctrine of inflammation and its practical relations, the true history of the subject would seem to be, that the English, following the paths of surgery, and by the observation of traumatic affection, have improved the surgical branch of the science; the French, taking the route of medicine, by observing fever, by general and pathological anatomy, have advanced the medical branch; while the Germans, guided by ophthalmic science, have effected a union of the two, and founded the doctrine of specific character. In regard to the eye itself, the system of the Germans seems to have been to extend the doctrine of inflammation, which they have here learned, to the whole of medicine; of the French to concentrate their views of general relations upon the eye, and to maintain, that there is in fact no special affection, but that the general organic life renews itself in a particular organ; and as to the English, it must be conceded that, in their late writings on the eye, they have not failed to recognise the ophthalmic science of the Germans, and, as appears by the latest edition of Lawrence's Manual, by M'Kenzie's Treatise of 1830, Walker's of 1834, and Middlemore's of 1835, to admit the specific character of inflammation, at least in its application to ophthalmia.

CHAPTER VI.

ENGLISH SURGERY AND OPHTHALMOLOGY.

Views on English surgery—Anatomy; pathological anatomy and museums—Stone—Modes of operating—Surgery in Edinburgh and London—Internal treatment—English military practice—Ophthalmology.

Not long since, a French writer, Baumès of Lyons, after a view of English hospitals, pronounced a judgment on English surgery, which is published in the *Gazette Médicale*, of May 16, 1835, under the title of "*Aperçu Médical des hôpitaux de Londres, où sont traitées les maladies vénériennes et les maladies de la peau, accompagné d'une revue analytique des principaux travaux des Anglais sur ces maladies,*" &c. We have ventured above to assert, that it is difficult to find fault with English surgery, and that the principal improvement needed there is, to take more cognisance of the learning of other countries, and especially of the doctrine of specific inflammation as established on the continent. Dr. Baumès

finds much more to condemn. He calls to mind the parallel drawn twenty years since by Roux between French and English surgery, and maintains that in the meanwhile the mode of operating has hardly undergone a change; that foreign discoveries and improvements have not been adopted, and that treatment has not advanced a single step. He farther reviews their surgical literature, and maintains that, since 1816, nothing important or new has appeared in this department. He also finds that, with the exception of Sir Astley Cooper's and Lawrence's works on hernia, which appeared earlier, the writings of English surgeons contain nothing new—no original ideas—no fundamental principles from which important deductions may be drawn; and that there are no young surgeons who promise to rival the fame of their predecessors. In his sweeping condemnation he includes Sir A. Cooper's late writings on luxation and fractures, diseases of the breast and testicle; B. Travers's researches on wounds of the intestines; Lawrence's writings on syphilitic ophthalmia and eye diseases generally; Guthrie on the treatment of the eyes, his observations on gun-shot wounds, on diseases of the urethra and neck of the bladder; B. Brodie's diseases of the joints and urinary apparatus; H. Mayo's remarks on disease of the rectum; Charles Bell's surgical works on great operations, on diseases of certain parts of the osseous system, and on the urinary apparatus; Arnott's diseases of the urethra, and Scott's compression in congestion of the joints.

In this judgment there seems to me to be some exaggeration, some mistake, and some praise. I must repeat here what was said in the second chapter on the comparative character of English and French surgery—that, viewed in reference to inflammation, the latter must be regarded as inferior to the former. In enumerating the distinguished surgical names at London, mention should be made of J. H. Green, Liston, Stanley, Tyrrell, Bransby Cooper, Earle, Wardrop, Langstaff, and Keate. In the writings of the surgeons named by Baumès, there are not only solid and long-established truths to be found, but, what he overlooks, new truths, and even fundamental principles of indisputable importance. Among these is the new nervous theory, developed by Charles Bell, the surgeon and physiologist. This is espoused by such surgeons as Shaw, Swan, Mayo, Earle, Macartney; and, among physicians, by Marshall Hall, Wilson Philip, Hugh Ley.

It would be hard to find out promising young surgeons, if we do not reckon among the number those who have already accomplished something; and the difficulty becomes the more evident when it is considered that in London a hospital, as an opportunity for display, is as necessary as war to a soldier. But if it be admitted that, according to general laws, talents and activity will never be wanting to second the spirit of the age, the former qualities can scarce be denied to English surgeons, when we see so much zeal for this branch of science actually manifested in their schools. To follow out deductions from correct fundamental principles is now the especial and praiseworthy occupation of English surgery. It

consolidates, compares, applies, and collects, not only in excellent monographs, but lately in equally excellent manuals and encyclopædias, whatever has been published of anatomical and surgical, of physiological and pathological observations and facts. This well sustained and systematic plan communicates to surgery in England a quietness, steadiness, and consistence, which have gained its professors great praise. If, on the contrary, we look at French surgery, its perfection consists more in partial improvements and single discoveries, which emulation and the eager pursuit of distinct objects have brought to light, and which do not appear united or developed in connection. Competition in English surgery has not assumed the direction of inventing new instruments and methods, to the neglect of others which are approved and cherished. On one side is haste, on the other moderation; one commands very great respect; the other, as may easily be perceived, much less.

In fine, our French traveller blames the internal treatment of surgical patients, because they receive stimulating nourishment, or because fever is excited by opening means and by calomel, in circumstances in which he at the same time saw evident irritation of the gastric organs, and a demand for antiphlogistic remedies. This objection concerns itself with peculiar medical views, and especially with Broussaism, of which enough has been already said.

English surgery, as it has been developed since the days of Gale, Clowes, Reid, Wiseman, and Woodall; by Cheselden, Sharp, Pott, Bromfield, Cline; then by J. Hunter, Everard Home, Abernethy, Blizard, and the living surgeons already mentioned, among whom Astley Cooper is still prominent as the model of an English surgeon—has progressed so securely as never to have made a misstep or retrograded, and to have always conveyed the impression of unity, as if formed in a single mould.

As it has been several times repeated already, English surgery derives its present character from John Hunter, and its basis is anatomy, which in general is less pursued and cultivated for itself, than in its application as surgical and chirurgico-pathological anatomy. To extend and improve this is a principal occupation of their surgeons—as their museums, hospitals, schools, and private collections, testify. By their connection with all parts of the world, comparative anatomy is facilitated. Human anatomy is attended with confessed difficulties; and for this very reason the rare opportunities afforded seem to be the more prized and availed of. The aid of copper-plates, of models, and of preparations in tartar, are all invoked by turns. It is in pursuit of this science that so many young surgeons go over to Paris, and that so many skeletons are carried from France to England. Meanwhile, the new anatomy bill has at once increased the facility of obtaining bodies, and rendered dissection more respectable. Since the discovery of the atrocious means employed to obtain bodies, and known under the name of Burking, and since the late parliamentary acts, the theatres no longer purchase bodies, but the parish surgeons deliver up all those which come into their possession (and this includes such

persons as die without relations and friends to claim them, and who in many instances have been expelled from civil society for crimes) to the anatomy inspector particularly appointed to receive them, by whom they are distributed to the different schools in order, according to the number of pupils. This office now belongs to Dr. Somerville. In consequence of these wholesome regulations, the subjects are both fresher and cheaper; since they cost only the transportation and the expenses of burial. This arrangement extends not only to London, but throughout England. Formerly, the number of bodies in London was from two to three hundred yearly, whereas the first year after the new act they amounted to six hundred, and out of London to one hundred bodies. In Ireland they are much more abundant. In regard to anatomy, fine injections, in which Macartney in Dublin possesses a well-earned reputation, are well conducted; but microscopic researches, which in Germany are becoming more general and are effecting still greater discoveries, are rather neglected.

Pathological anatomy is not only earnestly and carefully pursued, but in the most systematic manner. The account of the case almost always accompanies the preparation. In the museum, you at once remark the abundance of preparations of hernia, diseases of the urinary apparatus and of the joints, strictures, stone, aneurism, medullary fungus, and accidental variations of form. Most of them are very well injected. The pathological anatomy of the eye is very little cultivated, in spite of Wardrop's efforts. Such a museum is regarded as absolutely necessary, and is among the first objects in erecting a new school; it is, in general, very judiciously contrived, not only in the arrangement of the pieces, in which the plan of John Hunter is followed, and in the preparation of a catalogue, but likewise in an architectural view. The frames are placed in well lighted rooms near the walls, and little winding stairs in the corners lead to the second story, likewise divided, and to other galleries. They appear and are used like libraries. In some hospitals, especial painters and modellers are employed. In this way the true history of the hospital is preserved. Even here, however, we recognise the love of the English for curiosities; since here, as well as among their cases of disease, these are more highly prized than plain and merely instructive cases. The museum of the College of Surgeons, the greater part of which consists of the Hunterian collection, is the largest, and contains above twenty thousand specimens; but that in Guy's Hospital, of which Hodgkin is the keeper, that in the London University, in King's College, and likewise private museums, like Langstaff's, are all excellent. In St. George's Hospital is a cabinet, not of large size but of distinguished value; it contains only pathological preparations. The most remarkable are—diseases of the joints and of the urinary apparatus; purulent cavities in the medullary substance of the heads of the bones, some of which have been recognised, trepanned, and healed; the treatment of enlarged middle lobe of the prostate by perforation; among diseases of the bones, the falling in of the head of the femur

in old age, which resembles the healing of a fracture of the neck. It is, in fact, a great satisfaction to look around in this collection—and the more, as it is evidently a source of satisfaction to the English to exhibit these treasures of theirs. Some glasses are closed with small pieces of caoutchouc; but the usual mode is to fix upon the edges of the jar a flat ground glass or a hornblende, and a plate of lead with a double bladder. In order to estimate the merit of the English in surgical and pathological anatomy, one need only call to mind aneurisms, hernia, diseases of the bladder, accidental tissues, and, above all, medullary fungus.

Diseases of the urinary apparatus, which are the objects of particular attention, seem to be endemic, and connected with their peculiar mode of living. A stranger soon remarks the deep colour of the urine, and the yellow sediment adhering to the vessel. In the collections of calculi, it is easy to recognise the lithic acid stone, and at first sight to distinguish it from the heavier, harder, and rarer mulberry species, consisting of oxalic acid; as well as from the lightest, largest, and most frequent, formed of the phosphate of lime. The more slowly a stone forms, the harder in general it is; and hence one can, with some probability, draw a conclusion in regard to their chemical character. In the museums, most of them are sawn across so as to expose the concentric rings, and there is frequently seen a nucleus of hardened blood or mucus. They are marked with the history of the case, their weight, their composition, and the operator's name. According to a summary contained in the sixteenth volume of the *Medico-Chirurgical Transactions*, the geographical distribution of urinary calculi is as follows:—In Aberdeen (Royal Infirmary) there appeared, in ten years, sixty-eight—in thirteen boys, five women, and fifty men; in Bristol (Infirmary), in ten years, thirty-one cases; in Edinburgh and Leith, (Infirmary of military surgery,) forty-one; Liston, in Edinburgh, performed in ten years thirty-four operations; in Glasgow Infirmary, there were thirty in twelve years; in Hull Infirmary, two and a half to three annually; in Liverpool, ten operations in thirteen years; in Norwich Hospital, one hundred and twenty-two cases in eleven years; in St. Thomas's Hospital, London, seven and seven tenths annually; in the London Hospital, forty-one in ten years. In Dublin, on the contrary, Carmichael reckons only six operations to occur annually. Among the numerous causes alleged why the disease occurs in Ireland and in seaport towns so seldom, the use of unfermented liquors is the most probable. The latest work on calculus is by J. Gross, the celebrated surgeon in Norwich, where operations are the most frequent. In the Norfolk hospital there occurred, in sixty years, 704—of which 35 were performed on women; 611 were cured, 93 died, or one in $7\frac{5}{8}$. Another estimate gives the average of operations for stone, in London, at 47 yearly; in the rest of England and Wales, 64; together, 111. One case in five is said to terminate unfavourably, as is the case in Paris.

Lithotomy, so particularly improved in England, will now be considerably restricted by lithotritry. The latter method already

begins to extend itself. Heurteloup practises it exclusively, and is countenanced in so doing by Brodie; Castello also, Combe, and in Dublin Crampton, defend and practise it. It is intended, if the plan is not actually carried into effect, to found an especial hospital in London for twelve patients of this description.

The operative practice of English surgery is anatomically sure, quiet, and prudent. One day in the week is set apart for operations in the hospitals. Several of the hospital surgeons are commonly present together, and support one another by advice and assistance. In important cases, the practice adopted is the final result of deliberate consultations. The patients are introduced—at least this was the custom in St. George's Hospital—with a bandage over their eyes, and keep this till they are removed. The amphitheatre is filled with spectators; the light is introduced from above; the operation table is simply constructed; the instruments are of good steel, sharp, and not complicated. The operation usually proceeds in great quiet; rapidity of execution is very little, perhaps too little, regarded. New modes are less esteemed than those which are already approved, and have been practised throughout England. Bleeding vessels are tied with Bromfield's hook, and secured with the ligature, (I was not witness to the employment of torsion,) one end of which is left out of the wound.

In amputations the circular section is employed, but flap-amputation is resorted to in the leg when an artificial foot is to be worn. The bandage is intended to promote healing by the first intention, and all other dressings of linen or flannel are omitted. The fomentations are prepared with cold water, or brandy and water, but are not always used. Lint is little employed; the sticking-plaster is excellent, but the suture might be more frequently resorted to with advantage. As an example of the simplicity of their present mode of proceeding, I here cite Liston's practice. He frequently performs the flap-operation, making the first incision from without inwards, the second in the opposite direction. He uses a plaster prepared from isinglass, a strong solution of which in spirit, saturated at the temperature of boiling water, is spread on strips of oiled silk. In amputation the strips are laid between the sutures, and stick so fast that the threads can be safely removed at the end of twelve hours. The plaster does not irritate the skin. After amputation the wounded part remains quiet six hours before the above dressing is applied. The limb is then laid in a proper position, kept high and cool, and bathed with cool water. In healing by the second intention, the granulations are maintained, not by bread poultices, but by warm water, covered with the same oiled silk to prevent evaporation. As the ulcer heals, however, mild astringent or stimulating means are applied—as zinc, copper, or alum.

The finding and tying of vessels is, in consequence of the frequency of aneurisms, carried to great perfection; and there is abundance of practice in the treatment of accidents. About forty of these, on an average, enter the London hospital weekly. The non-union of fractures of the neck of the femur is acknowledged;

but in all fractures, however complicated, it is preferred to attempt union rather than resort to amputation.

The plastic operation deserves to be more extensively introduced from Germany. The merits of Graefe and Dieffenbach, however, in this respect, are acknowledged. Keate in London, and W. Ferguson in Edinburgh, have effected restorations of the nose.

Specific inflammation is, as hinted in the preceding chapter, not so fully recognised as in Germany. That the specific character of ulcers—German *helcology*, in short—is underrated, may be inferred from two late treatises on ulcers of the leg by W. Eccles in 1834, and J. Spender in 1835. Gout, syphilis, and scrofula, are regarded as the principal fundamental constitutional affections. Hence it happens that the medical treatment of surgical diseases does not appear altogether satisfactory. Besides this, the separation of medicine and surgery, at least in London and England generally, seems to be still too great. It is known that the London schools have an especially anatomico-chirurgical character, and this character also prevails in the London practice. In fact, the number of practitioners who at once pursue surgery, medicine, and even pharmacy, is very considerable; but these, mostly educated in the London hospitals, have in general a too empirical and too exclusively surgical bias, or rather an insufficient general and medical education. But, in truth, the high position which belongs to surgery it derives principally from its connection with medicine. In regard to Edinburgh surgery, very various judgments are formed in London, which the author has not been able to verify by a personal residence in that city. There is a spirit of rivalry which attempts to undervalue it, but this seems to be unjust. The Edinburgh surgeons must at least be better anatomists and physiologists, and have a more finished education. The distinction made between the two schools is, that in London the student gains a very perfect knowledge of anatomical structure, which knowledge is in general too little connected with physiology and (internal) pathology. In Edinburgh, on the contrary, anatomy is taught with especial reference to physiology and general practice. On account of this distinct point of view from which anatomy is regarded in the two schools, it is said to be very possible that a great part of the Edinburgh pupils would be rejected, on an examination in anatomy, at the London school of surgeons, and a still larger part of the London pupils would experience the same thing at Edinburgh. That the Edinburgh surgeons are better pathologists and scholars may be inferred from this, that the study of medicine and surgery is there pursued in connection, and likewise from the fact that the degree of doctor of medicine is not obtained till after four years of academical instruction, and that there is no degree of doctor in surgery.

Among the internal means employed in surgery, are bleeding, quicksilver, cathartics, and strengthening food. Sometimes, however, the medical part of the treatment, in the hospitals, is given to a physician, and then the physician and surgeon attend the patient

jointly. Some surgeons refuse to admit this participation. The hospital surgeons, indeed, who belong to the class of pure surgeons, as distinguished from the general practitioners, possess the requisite medical education to undertake internal treatment. In London, the proper English doctors of medicine, fellows of the College of Physicians, based upon the universities of Oxford and Cambridge, stand higher, both in classical and general education, than even the pure surgeons.

ENGLISH MILITARY SURGERY.

Every English regiment has a surgeon and an assistant surgeon. The former has the rank of a superior officer, and advances according to seniority, but never beyond the grade of the oldest captain. The latter has the rank of a subaltern officer, and advances to the grade of the oldest lieutenant. Both are partly doctors and partly examined surgeons, which depends upon the different management of the schools in England, Scotland, and Ireland. Their uniform is like that of the officers, but distinguished by a black plume on the hat. The assistant surgeons have, whether on duty abroad or at home, 7s. 6d. a day, about £132 yearly; in the cavalry, one shilling more for a horse. The full surgeons have, both in the infantry and cavalry, 11s. 4½d., about £220 yearly, and must keep a horse. Half pay for the time when one is not in active service, six shillings. Each full surgeon, after serving seven years as such, or ten years generally, obtains an increase of pay to 14s. 1d., the half pay remaining as before; after twenty years' service, he receives 18s. 10d., half pay as before; and when he becomes disabled by service, ten shillings; after thirty years, he receives fifteen shillings as half pay. The apothecaries receive ten shillings daily. A higher rank is that of deputy inspector of hospitals; they have 25s. and 12s. 6d. as half pay. Inspectors-general of hospitals have £2, and for half pay, £1 daily. The hospital mates receive 6s. 6d., in foreign countries, 7s. 6d.

The highest distinction belongs to the army medical board, of which Sir James M'Grigor is director-general. This board, however, does not form the medical establishment of the whole army. Its existing constitution, in fact, is due to the wars in the Peninsula, in which M'Grigor was peculiarly prominent, and gained great credit. The army medical board includes only the infantry and cavalry in England, Scotland, and the colonies—that is, about fifty thousand of the ninety thousand which constitute the whole army. The royal guard in London, the artillery and the numerous regiments stationed in Ireland, are independent of it. The military surgeons in Ireland report to their own director-general in Dublin, now Dr. G. Renny; the artillery, to Sir J. Webb; the guard, to the field-marshal of the army.

There are no especially military medical schools, as in Austria and Prussia. The dependence is placed on finding well educated medical men for military service by means of sufficient rewards

and honour. How great the number of aspirants is, may be inferred from the fact, that when the expedition against Spain, under Evans, was proposed in the year 1835, so many young physicians solicited the employment, that two companies might have been formed from them alone. There is a general hospital for the army at Chatham, six miles from London, under excellent regulation, with a good library, and a constantly increasing museum of anatomy and natural history. The cabinet of natural history is collected from all parts of the world, and the birds and reptiles are especially worthy of notice. Most of them are not set up, but lie in glass cases side by side, partly for want of room, partly because, for scientific purposes, this has been found sufficient, and a convenient mode of preserving them. The reports which the military surgeons render monthly, are commonly expressed in conformity with the nosology of Cullen. They are so full, that the report on an individual, taken together, might well be termed his pathological biography. Every new assistant surgeon is obliged, after his examination by the army medical board, and before his nomination, to go to Chatham, and there pass from four to ten weeks in learning the routine of medical duty.

When a regiment is distributed into several cantonments, the station of the principal surgeon is generally at the head-quarters of the corps; that of the assistant with the strongest detachment. The state of health of the whole regiment is enquired into weekly. The surgeons must regularly visit the hospital twice a day. The assistant keeps the sick-list, bandages, dispenses medicine, bleeds, &c. Every great operation must be reported before it is performed. Both surgeons have to provide their instruments, and keep them in order. The regiment furnishes the medicines. The upper surgeon directs the meat and bread for the sick. There are also waiters attached to the hospital, a hospital serjeant, a nurse, and an orderly man. The diet, which for the most part is alike for all English hospitals, is the following:—

1. *Full diet*.—For breakfast, one pint of gruel or rice; at noon, three quarters of a pound of meat, one pound of bread, half a pound of potatoes, one quart of table beer; at supper, one pint of oatmeal gruel, or rice broth.

2. *Half diet*.—Morning, one pint of oat gruel, or rice broth; noon, half a pound of meat, three quarters of a pound of bread, one pound of potatoes; evening, one pint of oat gruel, or rice broth.

3. *Small diet*.—Morning, tea; noon, quarter of a pound of meat, half a pound of bread, half a pound of potatoes; evening, one pint of oat gruel, or rice broth.

4. *Fever, or spoon diet*.—Morning, tea; noon, half a pound of bread, or sago, instead of a part of it; evening, tea.

One half shilling daily is the estimated expense of each patient. As respects the mortality among the troops, of fifty-three thousand, one hundred and fifty-three men who served in the colonies, there died, during a period of ten years, an average number of three thousand and thirty-seven yearly—that is, six times more than

died at home, and thirteen times more than in the French army, which for six years in France buried only 1.9 per cent. In estimating this difference, however, many allowances must be made.

The English military surgeons have greatly distinguished themselves by their learning, and by original works. Among their eminent authors of this class, are Hennen, Sam. Cooper, Guthrie, Hutchinson, Haunnick, Sir James McGrigor, Sir W. Burnett, Vetch, Sir A. Halliday, Bacot, Marshall, Murray, Dease, Lindsay. They have likewise been zealous cultivators of natural history in foreign climates, and have studied the geographical distribution of disease. An especial course of lectures on military surgery is delivered in Edinburgh by Sir G. Ballingall, and clinical instruction united with them.

The medical service of the English fleet was formerly very bad; the surgeons of the royal navy had no rank in the fleet, and what are now the assistant surgeons, were called, and were, in fact, doctor's mates. The condition of the latter still admits of improvement, both in regard to their pay, and their relation to the officers, with whom they do not associate or mess. The distinction of full and assistant surgeons is maintained in the navy. Those who apply for admission, must be neither under twenty nor above twenty-six, must have a sufficient knowledge of Latin, have been assistants to an apothecary, and have visited hospitals and attended lectures not less than two years, in London, Dublin, Edinburgh, or Glasgow, as is required of the surgeons in those places. A preference is also given to those who, by the knowledge of diseases of the eye, and of other branches, as legal medicine and natural history, have especially qualified themselves for the service. For the rest, the pay of the fleet surgeons is small, and their half pay for long services is estimated too low. In this respect, an improvement is expected, together with which the qualifications required for admission may also be increased.

In the merchant service, the surgeon receives, whatever the direction of the voyage, from £50 to £60 yearly.

OPHTHALMOLOGY.

Saunders, the actual founder of English ocular science, died in 1814, in the flower of his age. He founded an institution for this branch of surgery, and commenced the school in which Travers, Lawrence, Tyrrell, and Earle, have followed him. Wardrop and Guthrie are also to be mentioned as surgeons, who devote themselves particularly to the eye. Wall, Adams, Phipps, and the now celebrated operator, Alexander, were oculists, and distinguished as such. Among the institutions expressly devoted to ophthalmic cases, are the Royal Infirmary for the Diseases of the Eye, in Cork street, Burlington gardens, where Alexander is oculist, and Sir Henry Hallford physician; the London Ophthalmic Infirmary, in Moorfields, the founder of which was Saunders; and the West-

minster Infirmary for the Diseases of the Eye. Tyrrell and Guthrie are attached respectively to the two last. There are also similar establishments connected with the large hospitals.

The English appear to have much still to learn in ophthalmology, both as respects the diffusion of a general knowledge of the subject among physicians and surgeons, the more accurate distinction of qualitative constitutional or specific inflammation, as referred to in the preceding chapter, and the improved methods of operating. Among their most useful remedies, are the red precipitate, the nitrate of silver, both in the form of ointment (thus Guthrie considers a combination of ten grains of the caustic with one dram of simple ointment, employed in connection with blood-letting and aperients, as a real panacea in chronic scrofulous corneitis and hypopium) and in a solution, prepared with one to two grains to an ounce of water, and even stronger, for it is observed that a part of the salt is decomposed by the mucus of the eye. This solution is applied with advantage in chronic conjunctivitis, and especially in blennorrhagies. Strychnine is given in amaurosis internally and endermically, in half-grain and grain doses; and belladonna in inflammations, especially of the iris.

Guthrie is a great friend of local stimulants, and Lawrence recommends taking blood in considerable quantity at once, the more as he regards chronic ophthalmia as the same with acute, allowing for the difference in duration and intensity. When the disease depends on constitutional causes, among which he especially recognises scrofula, gout, syphilis, and rheumatism, he puts the patient on spare diet, or strengthens the system by nourishment, good air, exercise, and gives as internal remedies blue pill, extract. colocynth., extract. rhei, &c.

Their operative methods might be improved, especially in operations about the eyelids, for ectropium, entropium, and distichiasis. The comparative advantages of extraction or depression of the cataract are variously estimated. I saw extraction performed on the right eye of a woman, while the patient lay upon her back. The operator stood behind the head, held the eyelid with his left hand, and with his right divided the cornea^s upwards with a knife resembling that of Richter. A needle opened the capsule, and by pressure with the finger, the hardened lens was forced out. The whole operation was done quietly and prudently. The eye was then loosely dressed. The instruments are mostly very well finished, the handles short, those of the needles round, or with eight edges. Jacob, in Dublin, in order to be secured against the breaking of the knives in operations, adopts a peculiar practice. He takes sewing needles and bends them; out of twelve, eleven commonly break; the twelfth is selected for a cataract needle, polished, and set in a cedar handle.

Weller's manual is translated into English. Walker's Principles of Ophthalmic Surgery is the latest English work. This author has adopted something from German science, and has appended a vocabulary of French and German synonyms. The

English, in general, acknowledge the merits of foreigners, but on this subject express their astonishment at the three hundred technical terms, which have been counted in German ophthalmology, and term them "the product of the laborious wit and dulness of the Germans." In short, as they themselves express it, they respect German talent wherever it appears, but imagine that our professors must be authors and nomenclaturists by profession, and say that there are no lucubrations enveloped in such thick mist as the German. They are partly right.

CHAPTER VII.

CHANGES IN THE CONDITION OF MEDICINE IN FRANCE.

Before the revolution of 1789, there were in France eighteen colleges with power to confer the degree of doctor, which was very easily obtained, and, in fact, an article of traffic. In Paris, the corporation of physicians had an inconsiderable building near the Hôtel-Dieu; and the corporation of surgeons, though of lower rank, possessed the beautiful edifice which is now the school of medicine. Afterward, in August, 1792, all universities and faculties were overturned, and anarchy reigned even in medicine. In the third year of the republic, 1794, the national convention founded three *écoles de santé* for the whole country—at Paris, Strasburg, and Montpellier. Medicine and surgery were now united, the school of medicine founded, twelve professors were appointed for Paris, and a definite plan of study was to be pursued by the *élèves de la patrie*, and the means furnished gratuitously. It was also determined that all prescriptions should be written in French, perhaps only a concession to the ignorance which prevailed of the Latin; but the regulation continues. It was only, however, the select number of *élèves de la patrie* who enjoyed the privilege of gratuitous instruction. New arrangements were made in 1803, by which the three *écoles de santé* received authority to create doctors of medicine and surgery, and the law was promulgated that four years of study should be required before obtaining this degree. A second class of medical personages was likewise created, the *officiers de santé*; these were not obliged to study at the three great schools already mentioned, but had permission to practise after being examined by a jury of medical persons. In 1820, new orders were issued in regard to the universities. In Paris, there are now twenty-five professors; a definite course of studies is still prescribed, and the *officiers de santé* are continued throughout France. Of the arrangements of the Paris school, we have already spoken in the first chapter.

The *officiers de santé* are not obliged to complete the course of

instruction required for the doctors; they must study three years at one of the universities, or at a secondary school, and may, instead of this, pass five years in a country hospital, or live six years with a practitioner. They also undergo three examinations at the university, with an outlay of 250 to 300 francs, or they are examined by a jury of medical persons. They can practise only within certain limits, and all great operations are interdicted. They can, however, be very little controlled.

Among the qualifications for a degree of doctor in medicine, are a thorough school education, a diploma from the *Faculté des Lettres*, as bachelor of letters, and one from the *Faculté des Sciences*, as bachelor of sciences. These resemble our own proofs of maturity. The next condition is to take inscriptions at a university of medicine for five years, and to receive five examinations. These are commonly made at the end of each year. The first is in natural history, pharmacy, physics, and medical chemistry; the second in anatomy and physiology; the third in medicine and surgical pathology; the fourth in hygiene, legal medicine, *materia medica*, and practice; the fifth in *clinique interne* and midwifery. These examinations are held openly in the school of medicine. The expense of all the inscriptions amounts to 1100 francs. A foreign physician must, in order to become a doctor, submit to the examinations, and pay the sums for the inscriptions. This done, he is permitted to practice all branches of the profession where he will. There is, therefore, no farther examination under public authority.

The apothecaries in France form a very learned body. No one can practise pharmacy, till after examination by them; no one can dispense who prescribes, and no one prescribe who dispenses. The school of pharmacy is greatly respected. There are also herborists, so called, who must likewise be examined.

As much fault is found with the existing regulation of medical affairs, attention is now turned to the subject of reform, especially in the matter of education. As early as 1829, the minister of the interior addressed a series of questions to the Academy of Medicine, respecting the reorganisation of the whole system. The academy appointed a committee, which did not report till October, 1833, after the disturbances of the revolution of July, and the agitation of the cholera, had passed, and after their attention had again been called to the subject by M. Guizot. The report was laid before the academy by M. Double. In order to meet the increased demand for instruction, the committee proposes to add to the three existing faculties of Paris, Strasburg, and Montpellier, three others, one in Lyons, one in Rennes or Nantes, and one in Toulouse or Bordeaux. To make the examination more strict, the examiners are not to be taken from the members of the faculty simply, but (somewhat as in our state examinations) one third shall be from among the medical personages of the town or the vicinity. The report was accepted by the academy, and sent to the minister. Among its other suggestions of improvement, are the suppression of the *officiers de santé*, the prohibition of the secret remedies of

quacks and of certain abuses in medical and pharmaceutical practice, and the acknowledgment of foreign degrees. Patents for nostrums shall be issued only after the approval of the same by the academy of medicine; the remedy must be new and useful; it must be offered for sale at the regular drug stores, and after the expiration of the patent, the composition must be published; the tax for such patent shall be 500 francs for five years, 1000 francs for ten years.—According to a calculation which assigns one physician to two square miles (French), France requires sixteen thousand. Admitting that practice is commenced at the age of twenty-four, the annual mortality, according to general laws, would be three hundred and sixty-two, and, in fact, the number of physicians admitted by the three faculties has been for several years about three hundred and ninety. In order to secure a uniform distribution of the number, notwithstanding the unwillingness of practitioners to resort to the poorer districts, it has been proposed, that, for the future, both physicians and apothecaries shall pay a certain sum for the right to practise, which shall be proportioned to the department and to the population of the community.

This subject of reform is frequently urged in the *Lancette Française*, and gives to this journal its peculiar political colouring. Its criticisms are mostly personal and tinctured with party spirit, and its tendency is Saint Simonian. Its views, complaints, and propositions of reform, are singularly unreasonable. It maintains that the school of medicine is useless, and ought to be abolished; that instruction ought to be gratuitous; that as the number of physicians and surgeons is too large, a limited number only should be admitted into the medical schools (as in the *Ecole Polytechnique*, about three hundred are admitted at the commencement of a cursus, after a concours, in which about one in three succeeds); that the examinations should devolve on persons chosen at the time by lot; that of the twenty-four teachers of the medical faculty at Paris, at least one half are too old, or too insignificant, or too negligent, &c.

This year, a commission has been appointed by the government, to make proposals respecting the reorganisation of the medical establishment, and among its members are Orfila, Andral, Pariset, Donné, &c.

CHAPTER VIII.

CONDITION OF MEDICINE IN ENGLAND, AND ITS REFORM.

Medical corporations—Sketch of the College of Physicians, College of Surgeons, Company of Apothecaries in London—Constitution and condition of these corporations and their members—Accoucheurs—Universities of Oxford and Cambridge, Scotland and Ireland—The reform question—Medical politics—London University and King's College—Prospect of reform.

In Great Britain and Ireland, the physicians, surgeons, and apothecaries, are united in three corporations, which, having

different rights, and being in part old, in part new institutions, do not combine to form a consistent whole. In England, there exist as scientific bodies, and at the same time as acknowledged authorities, three colleges in London, viz:—

The College of Physicians,
The College of Surgeons,
The Society of Apothecaries.

There exist also, as institutions of medical education, in England, the two universities of Oxford and Cambridge, and especially the various hospital schools and other private schools, in London and in the provinces.

In Ireland, there is at Dublin a college of physicians, a college of surgeons, and a society of apothecaries; there are also a university, special hospitals, and schools.

In Scotland, there are the four universities of Edinburgh, Glasgow, Aberdeen, and St. Andrews; in Edinburgh there are also private schools, a college of physicians and a college of surgeons, which last also includes the apothecaries.

Doctors of medicine are created at the above universities, and afterward, in order to become members of the college of physicians, take an examination at one of the aforesaid colleges. In England, no actual physician is at the same time a surgeon; but in Ireland and Scotland, a doctor of medicine may be a surgeon also. The apothecaries in England can at the same time pursue medical and surgical practice; in Scotland, surgical; in Ireland, neither of the two.

The College of Physicians in London was founded under Henry VIII., and therefore before England and Scotland were united. Its first president was Linacre, who, as well as many subsequent presidents, stood in near relation to the universities of Oxford and Cambridge. It possesses very extensive powers for the maintenance and extension of medical study and learning, and for the control of medical practitioners generally, in London and within seven miles of that city.

These privileges, however, have for some time increased this college only intensively, not extensively; in fact, in the latter view, its influence has rather lessened, or been left unemployed, and little use has been made of circumstances to extend its control over education and medical policy. Neither has it employed its powers in adapting such changes to its constitution by by-laws, as would have corresponded to the change of times. It has greatly limited the number of its members, and has divided them into fellows and licentiates, thereby creating distinctions which are constantly becoming less useful and less appropriate. In conformity with the ancient ecclesiastical distinctions which prohibited all except adherents to the established church to study at Oxford or Cambridge, it has excluded all catholics and dissenters from fellowship. Even now, every candidate for this honour must have received a doctorate of physic at these universities, and consequently have signed the thirty-nine articles; or he must have been a doctor at the Dublin

university, and afterward at least have inscribed himself at an English university. In fine, the College of Physicians of London, where surgery was already at so low an ebb, has excluded all surgeons from their association and regard; the same is the case with apothecaries and accoucheurs.

The College of Surgeons was established as a special corporation by act of parliament, in the year 1745. It was again dissolved, in consequence of some accidental irregularities in its proceedings, and the present College of Surgeons founded in the year 1800, by George III., for the promotion of surgery, for the examination of surgeons for the army and navy, and of other individuals who wish to become members. Its original constitution empowered it only to subject to the scrutiny of its court of examiners those who should voluntarily express a desire to become members. Its high character, however, and the consideration attached to membership, are such, that at present no surgeon, either in London or in England, would commence his course of practice, without submitting himself to the required examination. In the two first years of its organisation, three hundred members were admitted; in the last two, seven hundred. This college excludes medicine, as well as midwifery and phararmacy, from its course.

The apothecaries, who, unrestrained by any authority, exercise at once medicine, surgery, and obstetrics, were united in one corporation in the year 1815, very accidentally, on occasion of the then existing apothecaries' company—a mere trades' union—addressing a petition to the minister to obtain a reduction of the duties on glassware. It now combines privileges in itself to which the other two cannot pretend. The Apothecaries' Company or society assumes the examination of general practitioners in England—that is of those practitioners who combine with the trade in, and the preparation of, medicinal articles the practice of medicine, and likewise of surgery and midwifery. It assumes an oversight of all medical articles exposed for sale. It has a court of examiners, and its admitted members are called licentiates. As belonging in a manner to the class of trading people, they are looked down upon by the regular physicians and surgeons; but they have the advantage in point of number, and are cheaper to their employers, as they charge only for their medicines and not for their attendance.

There remain of the medical corps the mere dealers in drugs, the druggists and chemists. Then there are oculists, aurists, and dentists, all of whom practise on the freest terms, for they are without examination and without control.

The College of Physicians—the union of physicians properly so called—is very small in number. From 1772 to 1832, this college, according to one statement, has admitted only one hundred and sixty-nine fellows, and since 1823 only one hundred and seventeen licentiates. The total number of estimated members in London is about four hundred and sixty. There are also licentiates admitted beyond seven miles distance from London, who are called extra licentiates, but are few in number. These physicians demand

for their professional services, in proportion to the price in other countries, a very high fee. Advice given in their own houses costs the patient half a guinea or a guinea; a visit at the patient's house one to three guineas. Every mile beyond London is reckoned at a guinea.

Among the immediate regulations (by-laws) of the college are the following:

No one can be a candidate for a fellowship unless he has all the rights of an Englishman by birth, is twenty-six years of age, and has been doctor of physic in Oxford, Cambridge, or Dublin. The candidate must not have traded in any secret remedy, or have supported himself by practising the art of surgery, midwifery, or pharmacy; he must have been examined and approved in physiology, pathology, and therapeutics, and likewise in Hippocrates, Galen, and Aretæus. Again, any member who commits a misdemeanour, or who practises pharmacy, midwifery, or any manual labour, is expelled. No one can be a fellow, unless he has fulfilled the above conditions, and has been a candidate for one year. The admission is voted by secret ballot; the ceremony of admission is solemn, and accompanied with an oath; the new member pays £135.

Licentiates are those doctors of medicine who are examined by the board of the college, but have not studied at Oxford, Cambridge, or Dublin; having graduated at a Scotch university or abroad. They pay £24 on admission. They cannot be chosen officers of the college, and have no right to use the library or the other collections. The president, however, has permission to propose one of the licentiates every two years as a fellow. There are four censors and four curators, out of which number the president is chosen yearly. This highest medical honour is now possessed by Sir Henry Hallford, who has been president ten years without interruption. The registrar is Dr. Francis Hawkins. The yearly income, principally consisting of rents of houses which have been bequeathed to the college, amounts to about £4115 yearly. The college has a handsome building in Pall-Mall east, near Charing Cross: here are—a library, a collection of articles of the *materia medica*, and the assembly room. A large meeting is held four times a year, and essays listened to, which are read by the registrar; once a year the Harveian oration is delivered in Latin. These assemblies are numerous and even fashionable. Some of the ministers and members of both houses are usually present, for the physicians proper in London maintain a high rank in society. By their education at the universities with the noblemen of the country, they form associations, which they endeavour to retain both in their private relations and as members of the society. These meetings are held in the evening. The president sits before a green table; near him are placed the most distinguished guests; on his right stands the secretary; the hall does not contain nearly seats enough for those present, who appear in shoes; tea is served in an adjoining apartment, and after two hours the meeting is closed. The College of Physicians is likewise a scientific society,

and has published three volumes of transactions, a full edition of Harvey's works, and the *Pharmacopeia Londinensis*, the latest edition of which is some time since exhausted. Lectures are also delivered under its sanction. It is a recognised authority, and as such must take the responsibility of having gradually thrown the practice of medicine, for the most part, into the hands of the surgeons and apothecaries, and of having neglected the care of the public health. The college consists of members who individually stand high in scientific and general education, and who have never stained their character as gentlemen for the sake of money, which it would have been easy for them to obtain, but who have kept less in view the purposes of science than their external relation to the society, and have thought more of their rank than of their attainments as physicians. In short, the college of physicians has marred its good qualities by the fault of being too exclusive.

The whole number of physicians proper, or doctors of medicine in England, is reckoned at about six to seven hundred.

The College of Surgeons consists merely of members distributed in all England and Wales. Their peculiar province is surgery; but as the mere surgical practice is small, and as on account of the small number of actual physicians there is a demand for the latter, they also treat medical cases, and have generally an apothecary's shop, receiving in the latter case licenses from the association of apothecaries. This plan is not adopted, however, by those who are termed pure surgeons—who are the most respected, and the number of whom in London amounts to about one hundred—who alone are operative surgeons and teachers in the hospitals. The council consists of twenty-one members, all of whom live in London, who fill their own vacancies, and select for this purpose from the number of pure surgeons only men of "high moral feeling." They have especially the whole conducting of the college. The college building is a large edifice in Lincoln's-Inn Fields, which at this moment has been built out and enlarged. It contains the famous Hunterian museum presented to it by parliament, which is still increasing and well kept, but not wholly arranged or set up. A library has been collected within ten years, which is rich in the departments of medicine and surgery, and is open to all the members, and even to strangers. It contains nearly 20,000 volumes, and in its arrangements and appointments has taken that of the British museum as a pattern. In the museum, which is well known to contain a systematic course of preparations for the illustration of animal and likewise vegetable structures, both in healthy and morbid condition, there are of the wet preparations about 8087 pieces set up—perhaps three fourths of the whole—and of the 7697 dry perhaps a seventh part is set up; so that on the whole about one half is in a condition to be used. The conservator, Clift, is still employed in putting them in order, and preparing the catalogue and commentary, which we have already seen in part in German. It is open three times a week, from ten to eleven o'clock, —viz., Monday, Wednesday, and Friday—but to strangers every

day. Every year thirty lectures are delivered, in as many hours, by two teachers appointed by the council, to which the members have the right to be admitted, and the older students of the hospitals obtain permission. From time to time there appears a volume of Transactions of the Royal College of Surgeons in London. The income arises principally from the fees for the examination certificates, and hence is uncertain. It amounts annually to about £11,000, and the expenditure to £8,000, of which £2,000 is for the museum alone, £900 for the library; their capital amounts to £70,000. The number of members of the college in all England and Wales is about seven thousand eight hundred, of whom about two hundred are pure surgeons; the rest belong also to the apothecaries' association, have an apothecary's shop, and are called surgeon apothecaries.

The council of twenty-one members has a president, now T. Andrews, and two vice presidents, Sir Astley Cooper and Sir Anthony Carlisle. From these there are chosen ten examiners, which dignity generally devolves on the oldest in succession. In London there are reckoned two thousand members; the members of the council must reside in London. The rules of the examinations are stated above. (s. chap. i.) Between 1823 and 1833, there were four thousand six hundred and twenty-one candidates examined, of whom three hundred and sixteen were rejected. The price of the examination is £22; most of them, say nine in ten, are examined but once. The ceremony commences at 6 P. M., and continues usually till midnight. The ten examiners receive together five guineas for each candidate examined; this, divided, brings to each examiner for each evening about six guineas; and this is repeated about fifty times a year. As the examiners are almost all teachers at the hospitals, their respective pupils are not examined by them; each examiner can put questions at all times.

The surgeons have in this manner, besides elevating their art, raised themselves in their external relations. Sir Everard Home was the first surgeon who received the honour of knighthood. All write more or less medical prescriptions, and the medical practice of a surgeon is reckoned at about nine tenths of his whole professional occupation.

The Apothecaries' Company unites the practising apothecaries. It possesses the large building called Apothecaries' Hall, near Blackfriars' bridge. It was originally a trades' union, but is now a scientific association, and as such publishes transactions, and has a botanic garden; it is also a recognised body, with the regulation, care, and oversight of examinations. As a commercial union, it purchases and prepares medical articles on a large scale, and sends great quantities of calomel, for example, to the colonies. Their chemical preparations are furnished to the druggists for retailing; so that the latter superintend only the mixing.

The number of general practitioners in England and Wales is reckoned at ten thousand (this estimate includes the greater part of the surgeons also). Admitting, then, that an average medical

career is twenty-five years, it follows that four hundred additional members are required yearly; and about this number are actually examined at Apothecaries' Hall. In order to become a licentiate of the society, the fee required is six guineas; and from those who intend residing in London, ten guineas. As the physicians are so few in number, and their services so dear, the general practitioners become the medical attendants of the poor, the middling classes, and even of the richest in ordinary cases. The apothecaries are not permitted to write prescriptions. After a visit they send the medicines to the patient, and, with a few recent exceptions, the latter pays only for the articles ordered, and not for the services of the attendant. Hence they have been charged with sending too much medicine, and in fact in every case of disease a new packet is furnished after the visit of the day. If they are likewise surgeons, however, they can prescribe. In the critical periods of disease they sometimes call in a regular physician, but this is seldom resorted to in the country. Sometimes the general practitioner is at once physician, surgeon, midwife, apothecary, and tradesman. Pharmacy has perhaps generally been their weakest side; it stands, in fact, lower than in France or Germany. Their chemical labours are mostly anticipated at Apothecaries' Hall, so that little more remains for them than the compounding. The mechanical character of these processes, carried on in Apothecaries' Hall, forms of itself a broad line of distinction between the condition of apothecaries and that of physicians. The former cannot be chosen hospital physicians or surgeons. Should a young man, at sixteen years or upwards, have entered as assistant in an apothecary's shop, and during or after the next five years have attended the three required winter courses and two summer courses; and should he, after this, fail in an examination, he troubles himself no farther about the apothecaries' company, as it is free for him to be druggist or chemist, and thus to sell and to practise in entire independence. Druggists and chemists are in great number over all England. Sometimes these shops are inspected by the apothecaries' company in connection with two members of the college of physicians; but, as the articles are purchased from Apothecaries' Hall, the former are in fact examining their own wares. The apothecaries in England, therefore, have gradually assumed more of the medical character, and laid aside their own; they have ceased, in fact, to be apothecaries, without becoming physicians.

From the Transactions of the Royal Medico-Chirurgical Society, acknowledged perhaps as the best collection of treatises in English medical literature, may be inferred the relative position of the three grades which have been referred to. They contain, up to the year 1832, in a series of seventeen volumes, 183 remarkable cases, and 192 memoirs, whose authors may be thus distributed according to their rank:—fellows of the college of physicians, 14; licentiates of the same, 100; surgeons, 120; army and fleet surgeons, 38; general practitioners, 67; surgeons out of London, 23.

There are some doctors of medicine who practice midwifery

exclusively, and these are held in high estimation. There is also an obstetric society in London, the object of which is to excite the medical corporations to take more cognisance of this branch of medicine. This, however, has hitherto not been effected. Midwifery is still regarded as a feminine occupation, and its cultivators are in derision termed men-midwives. There are no institutions for the instruction of females in this branch.

The two English universities of Oxford and Cambridge have for their principal objects of study the classics, mathematics, natural history, divinity, and physic. They require a term of study of eight years in Oxford, in Cambridge of ten years; of which, however, only three and a half years need be passed at the institution; and the expense amounts yearly to from £300 to £400. The course of medical study might be effective, for the facilities for the purpose are present or may be easily obtained. The number of medical students, however, is very small, on account of the restraints imposed, amounting only to a little more than twenty at each. The professors are frequently absent; the candidates have certain insignificant examinations to undergo: first to become bachelors of arts, then bachelors of physic, and then doctors. The examinations are acknowledged to be mere formalities; at the graduation frequently no one is present except the doctor and the beadle, and even the theses are not prepared by the future bachelor or doctor, but by the beadle aforesaid. Of these graduations there are about three yearly. Dr. Kidd, regius professor of physic in Oxford, said himself before the parliamentary committee, that for the obtaining of the honours there was actually no medical education needed. The general education of the candidates is not despicable, partly because they have pursued classical studies at the schools, partly because they continue these at the universities, and here at least are made to estimate the importance of science, and gain an elevated idea of moral worth and of the value of medical study and rank. Their medical knowledge, however, is gained in London, Edinburgh, Dublin, or Paris—every where, in fact, except at Oxford or Cambridge.

It is evident that the system of medical instruction in England is at this moment, in many respects, imperfect. The instruction given at the universities to physicians has become almost insignificant, and that furnished in the hospitals to the numerous surgeons and general practitioners is not sufficiently extended. Political and legal medicine are nearly prostrate; the latter has been taught in London only within twenty years, and in medico-legal cases neither the labour nor the judgment of a surgeon is duly appreciated. The number of physicians is too limited, and hence they are constantly more and more encroached upon by the general practitioners, who in general are not altogether respectable practitioners of medicine. The separation of medicine from surgery is for the most part too abrupt; the accoucheurs ought to be promoted in rank; the druggists and chemists to receive more respect; the quacks to be put down. By the external distinctions maintained, the spirit of

medicine is weakened and dissipated; the free development of medical effort is discouraged, and the welfare of the public neglected. These circumstances, therefore, require to be changed, and the desire for reform is universal. Petitions for this purpose have been directed to parliament, and among them one from the most respectable physicians of London, mostly licentiates of the college of physicians. In consequence, a committee of the former body was appointed in 1833, and still remains organised. They are styled a select committee on medical education and practice. Their president is Mr. Warburton, who first introduced the subject, and who is the father of the anatomy act which produced such general satisfaction. Warburton is a radical, but it is unnecessary to remind him that this is no anatomy bill; that the corporations are not yet dead bodies; and that, if they were, the object is not to dissect, but to revive them. In this committee there are members of the colleges of physicians and of surgeons, and other eminent men, and their published views and opinions fill several folio volumes, which were not lost, as was feared, at the late burning of parliament house. The problem of reform, however, is a very difficult one; for it is connected with the great questions of reform in England generally, with the division between the whigs and the tories, and in part with the questions upon the English church and the dissenters. But whatever may be thought of conservatism and reform, it is to be wished that the change in the system of medical affairs may be regarded as necessary in itself. Even when unanimity shall be obtained on this point; when it is acknowledged that the corporations have survived their usefulness, that abuses have crept in, that wisdom has become folly and kindness an injury; still there will be various opinions on the point, how far change is admissible, and what measures ought to be adopted to effect it.

The question of reform is the principal theme of three weekly medical journals, which have a distinct character as political publications, and, like the latter, have their "leading articles." The radical journal among these is the *Lancet*; its opponent is the conservative *London Medical Gazette*, and between the two stands the *London Medical and Surgical Journal*. The first is published by Messrs. Wakley, the second by Dr. McLeod, the last by Dr. Ryan. The *Lancet* has been particularly prominent and conspicuous in connection with the question of reform, and likewise by the publication of the lectures of eminent teachers, who endeavoured to prevent this proceeding, but in vain, until at last an act of parliament declared such publication to be an infringement of property, and forbade it. The *Lancet* makes a business of exposing the defects of the medical establishment; of bringing to light abuses, irregularities, and faults; and, as it also introduces personalities and the private affairs of individuals, it has rendered itself by these means a very popular journal, and Mr. Wakley has gained no inconsiderable credit. He satisfies himself, however, with discovering defects and finding faults, and few suggestions of positive improve-

ment are to be found in his pages. Last year he was chosen member of parliament by a part of London, to the astonishment of many of his countrymen.

The Medical Gazette is a conservative journal; its publisher is a licentiate of the college of physicians, physician to St. George's Hospital, and known by his activity as a writer. In this journal, to say nothing of the valuable scientific contents, it is easy to recognise the elevated tone of the college of physicians. Its language is not in opposition to reform; a change of laws and institutions is acknowledged to be necessary to meet the changes of the time; but with this some regard is paid to replacing what is removed. The college of physicians has also itself made some changes lately in its own laws. The London Medical and Surgical Journal has its medical portion, calculated, like that of the *Lancet* and the Medical Gazette, for the use of students. All these contain very good essays, cases, and announcements of the latest discoveries in medicine, especially, among those abroad, of French medicine and surgery. The political character of the last named journal, as already observed, is neutral. Its views of reform comprise the adoption of some of the French regulations—of the concours, for example—in conferring appointments; but the Medical Gazette goes farther, compares and estimates the medical constitutions of more distant countries, and proposes to adopt improvements from Germany, Austria, and Prussia.

To supply the acknowledged want of a university in London, two institutions have lately been started, having distinct political and ecclesiastical characters; both having pretensions to the rank of a university, and both deserving notice in this connection for the great importance of their medical regulations.

The whig party first determined, in the double view of advancing science and of opposing the conservatives, to establish a university in London. For this end they turned to account the zeal for speculation, at that time prevailing; and, in order to encourage the approaches of dissenters, who are excluded from the two English universities, no professor of divinity was appointed. Its foundation dates from February, 1826. By issuing shares of £100 each, the holders of which are styled proprietors of the university of London, a capital was formed, and a very handsome edifice erected at the northern part of the city. A council of twenty-four proprietors takes the lead, and assembles monthly. A complete description of the plan may be found in Horn's travels. It still remains a private company, has not the power of conferring medical degrees, and does not meet all the expectations which might justly be formed of it as a university. From its admitting dissenters, apprehension has been excited among the more spiritual, that the principles of the English church would not be maintained there; and consequently it is only in those branches of science which have least concern with ecclesiastical questions—as medicine, for example—that the university begins to enjoy a certain degree of prosperity.

The medical school has at present the following teachers and courses.

LECTURES.	PROFESSORS.	DAYS AND HOURS	FEES.	
Medicine	Dr. Elliotson	daily at 8	£5 0s. and	£8
Mat. Med.	Dr. A. Thompson	5 times at 3	6 0	9
Midwifery	Dr. D. Davis	3 times at 9	5 0	7
Chemistry	Dr. Turner	daily at 10	7 0	10
Legal Medicine	Dr. A. Thompson	twice at 4½	3 0	
Anat. and Physiology	Dr. Quain and Mr. R. Q.	5 times at 2	12 0	18
Surgery	Samuel Cooper	3 times at 7	4 10	6
Botany	Dr. Lindley	3 times at 9	3 0	6
Patholog. Anatomy	Dr. Carswell	3 times at 10	3 0	
Comp. Anatomy	Dr. Grant	4 times at 3	3 0	
Veterinary Surgery	Dr. Youatt.		5 0	7

A pathological museum, already well filled, contains a collection of preparations and demonstrations by Charles Bell, who was formerly teacher at the institution, but afterward left it, and is now replaced by Carswell. A hospital, called the North London, or London University Hospital, is situated opposite the university; it is a simple building, containing at present one hundred beds, which number is soon to be increased to two hundred, and has been open since 1835. The wards, the theatre, &c., are very well adapted for use. The physicians are Drs. Elliotson, A. Thompson, Carswell; the surgeons, Cooper, Liston, and Robert Quain; the latter has lately retired. Clinical lectures are given. The principal object is to rival successfully the other hospitals and schools. For this purpose the places of house pupils and of dressers are disposed of by concours, the lectures are somewhat cheaper, and the fee for attendance on the hospitals amounts to little more than half the usual sum demanded at other institutions. With all this, however, the odium of a money speculation still remains; a share of 100%, which is now still less, gives a right of property, and with it an influence in the management of the university; the institution, notwithstanding the reputation of particular teachers, has never been able to attain the highest character; and its political and religious position condemns it in the eyes of many. In view of these circumstances the conservatives and church party have likewise founded a university under the name of King's College. King's College, in like manner with the last, embraces the sciences, and has likewise displayed an especial regard to medicine. The council express their belief "that many who intend their sons for the medical profession will willingly seize an opportunity to connect themselves with an institution, which has for its leading object to educate the rising generation in the doctrines of Christianity as taught by the established church, and to implant in their minds the true principles of morality. It is expected that all who belong to the class of students of medicine of King's College will regularly attend divine service in the chapel of the college on Sunday morning."

Their new building is large and handsome, and stands on the Strand, next the east wing of Somerset House, near Waterloo Bridge. The entrance is imposing; a flight of stone steps leads to the corridor, which passes through the whole building, and is three hundred feet in length. In the middle of the corridor is the entrance to the chapel; on the two sides are ranges of apartments, on the west lie the library and the anatomical museum. The former is still small, the latter already contains four thousand pieces, mostly pathological preparations. Among them are diseases of the bones, of the joints, of the digestive apparatus, of the lungs, and of the blood-vessels, in great abundance. There are also morbid preparations of the generative and urinary organs, and the wax models are perhaps the best in London. The germ of this museum was Herbert Mayo's collection. The general lecture room is light and well fitted for hearing; the anatomical theatre and the dissecting room are in a separate building directly upon the Thames. The morning lectures are from eight to twelve o'clock; about ten o'clock short prayers are read in the chapel. Between twelve and half past one there are no lectures, in order to leave time to visit the hospitals. The last evening lecture is at eight o'clock. The price of a complete medical course is 50*l*. The students have permission to wear the academic dress, cap and cloak. They still want a special hospital, although one of the professors is attached to St. Thomas's and three to the Middlesex Hospital. Many of the students attend St. George's, Westminster, or St. Bartholomew's. It was expected to have united the new hospital at Charing Cross with the college; but this was not effected. The courses commence commonly the 1st October and terminate with the end of April. They are divided in two parts, the second commencing on the 21st of January. The students are either regular, and as such attend the courses throughout, or they attend some of them only, and are termed occasional students. The school was opened in 1833. The lectures and teachers are as follows:—

LECTURES.	PROFESSORS.	DAYS AND HOURS.	FEES.			
Medicine	Dr. F. Hawkins	3 times at 9	£3	3s.	and £6	6s.
Mat. Medica	{ Dr. B. Hawkins { Dr. Gregory {	3 times at 11	3	3	6	6
Midw'y and Diseas. { of Women and Ch. {	Dr. R. Ferguson	3 times at 11	3	3	6	6
Chemistry	J. Daniel	3 times at 3	4	4	10	10
Legal Medicine	Dr. Watson	twice at 3	3	3	4	4
Anat., Physiology, { and Path. Anatom. {	H. Mayo and Partridge	daily at 10½ and 2	8	8	18	18
Surgery	T. H. Green	3 times at 8 P.M.	4	4	6	6
Botany	G. Burnett.	6 times at 8	4	4	6	6

A short time since, however, several of these teachers retired in consequence of some disturbances, and their places are still to be supplied.

Both universities have since been trying to obtain a royal charter. Their medical faculties are hitherto well contented if they can equal the schools of the hospitals, and have teachers sufficient in number and abilities; but the subjects of study are far too limited, if they wish to be considered as universities.

These two institutions may now be considered in reference to the question of reform. It is thought that, if a metropolitan university shall have been founded, they will come to be university colleges, and that similar colleges will be founded for the provinces also. A general examining committee, to which the three corporations are to contribute, is to confer degrees. Oxford and Cambridge, these old "great seats of learning," can, by improving their medical instruction, still maintain the pre-eminence due to their ancient fame. All must now be anxious to learn the conclusion of the parliamentary committee, and all are prepared to be astonished at the sagacity and wisdom, with which the British parliament will avoid infringing established rights while granting desired privileges. The report and plan of the committee are not expected to be forthcoming the present session (1836), but the next year a decision of parliament is anticipated on this subject of medical reform.

It may also be added, that at Easter of the present year some important changes in the laws of the College of Physicians, made by themselves, have gone into operation. At present every new applicant is first made a licentiate, and having remained such four years, can then be proposed and elected a fellow. But the conditions of becoming successively licentiate and fellow are the following. The candidate must adduce evidence of having studied, for five years, anatomy, the theory and practice of medicine, chemistry, materia medica, natural history, especially botany, midwifery, legal medicine, and the principles of surgery; he must also have attended the practice in a hospital of at least an hundred beds; and persons who have previously studied abroad, must spend one year at least in attending an English Hospital. Whoever wishes to become a fellow at the regular period, must be regularly proposed by the new established council or committee, consisting of twelve members, and must likewise have been graduated at an English university.

CHAPTER IX.

A GLANCE AT GERMANY.

Theory in German medicine—Influence of philosophy upon this and upon systems—
Natural philosophy.

When one from beyond the Rhine and from beyond the North Sea looks back upon Germany, he recognises at once a prominent peculiarity in this country. He perceives the great number of theories, and of misty theories, which are there found heaped up together. And as the contemplation of each object from a distance thus assists in forming a correct idea of it, the fact becomes more evident, in thus regarding them, that a cloud still hangs over Germany, the principal masses of which are indeed rolling away, but the smaller portions, still lingering, seem unwilling to follow. This cloud is our philosophical age, which indeed has given life to German medicine, but which, it must be confessed, though beneficial in its tendency, has not exerted this happy influence directly. I may perhaps be permitted, in the present chapter, to contemplate somewhat more closely the general character of German medicine, as it has shown itself for the last fifty years, then to point out how the predominance of theory has impeded its actual progress, to notice the change which has taken place in this respect, and at the same time to show plainly the influence which this predominance still exerts, in a special manner, on the branch of pathology.

As at the end of the last century our literature and science assumed a higher stand, first through the poets, afterward through the critics and philosophers, so every science took its character from these three classes. And as the most elevated and profoundest thoughts were elicited by philosophers in metaphysical researches, the feelings of the Germans were especially interested in these, and all sciences became, to a great extent, speculative. The sensible retreated before the spiritual. Even medicine felt the influence. The earlier writers and practitioners, as Stoll, P. Frank, A. G. Richter, Selle, S. G. Von Vogel, &c., had followed the path of experience, and some remained faithful to their example, even during this period of revolution. But in general, during this period, this course was contemned, and regarded as appropriate only to ordinary and weak minds.

At this favourable moment a theory came from Scotland, the well-known, and once with us fully domesticated, theory of Brown. Seldom has a doctrine been received with greater eagerness than this was seized upon in Germany. It seemed at once simple and logically exact. The interest it excited amounted to enthusiasm. Afterward, when this system had been attacked, both theoretically and on practical grounds, it fell very rapidly in general estimation. But the speculative direction was already given to the public mind, and the path, once entered, was not easily abandoned. Other

medical theories arose in succession, among which the theory of stimulus, so called, and many other dynamic views, gained especial popularity.

Meanwhile, philosophy, besides the direction given it by Kant and Fichte, assumed another form, which adapted itself easily to medicine and to natural science in general, and which appeared under the title of Schelling's Philosophy of Nature. If German medicine had been before carried away by its overweening attachment to speculation, it pursued this new path with even greater eagerness. Here was not only abstract philosophy, but an elevating comprehension of all nature, with no small admixture of poetry. A union of medicine, philosophy, and poetry, succeeded. Schelling, the founder of the philosophy of nature, stood in close connection with the romantic school, so called, of our beautiful literature, to which some of our best poets belonged, as Tieck, the two Schlegels, and Novalis. He and the school exerted an influence on each other. While this union was extending itself to various sciences, a large part of its action was exerted on medicine. Such is the evidence of history, and traces of this union may yet be perceived. Medicine, previously spiritualised, was now inspired. Apollo was doubly its divinity, both as the god of healing and as the patron of the muses. A little terrestrial matter, a little that was positive and certain out of this science of experience sufficed, and therewith the pinions of thought mounted into the ideal. One sang in physiology, another warbled in pathology. They felt the soul of the world opened to them. What was beautiful and spiritual passed also for true; the distinction vanished, the resemblance prevailed. Metaphors and figures were explanations. The eye was light, the ear sound, the brain thought. This beautiful time has passed by. Here and there are still heard some faint echoes of it, but even the most zealous adherents of these views only express them at intervals. Our own age has become prosaic. Those poetical licenses which were formerly allowed are now less admissible. It is now acknowledged that all this was a mere frenzy which had possession of the public intellect. Yet this medical romance, if regarded without reference to its application, is not without merit as poetry. It deserves a place among our classic writings, and its language, which is confessedly unintelligible to the mass, is still worth studying, if only to understand and feel its truly poetical beauty.

But if Brownism, the theory of stimulus, the philosophy of nature, and their various modifications, have had their day, something still remains of the spirit of that age which may in general be termed the ideal. The evidence, as well as the cause of its disappearance, is that it is understood. "Every age," says a late writer, "is like a sphynx; when its riddle is solved, it throws itself down headlong." At present, while we acknowledge the favourable effects which are just beginning to show themselves, we can point out several direct and indirect evils which these false views, and this striving after the ideal, have done to science. These will

be made evident by enumerating the defects which in general appear to belong to that period, and the latter may be arranged under three heads.

First, and above all, discrimination was neglected. The Germans are comprehensive, and can embrace a large part or the whole of science in one view; they love to make comparisons and find analogies, and by these very analogies they have been misled. In the comparison of several objects, there are two points to be regarded—the resemblance and the diversity. The resemblances are to be summed up, and the differences to be deducted. But at this period analogies were so eagerly sought, that even when they were extremely feeble, the effort was still made to find points of resemblance, so as to make out the general similitude. The object was synthesis rather than analysis, to assimilate more than to distinguish, to generalise than to specify. The aid of imagination was called in to perplex and mislead the judgment. Men indulged themselves, not only in comparisons, but in figurative expressions, not seeking to explain individual views, but to illustrate obscure relations. The Germans at this period were not so much philosophers as philosophical poets; and far more interested in the pursuit of intellectual beauties than of scientific truth.

Secondly, there appeared a certain contempt of material objects, or what might be termed objective forgetfulness. Speculation, which the pride of philosophers adopts as the surest path to knowledge, is in medicine to be applied with a good admixture of pure sensualism. The greatest part of our science must be found in the domain of the real, which can be recognised by the senses. The solidity and depth which have been justly ascribed to German genius, were then the solidity and depth of theory. So much did men live in the world of ideas, that the word spiritual (*geistreich*) conveyed the highest praise, and an idea was prized only for itself, and not for its truth or susceptibility of application. Structures were erected in this ideal world with a security which can now hardly be conceived; and it will become still more wonderful, how such colossal theories could be reared up on such slender facts. Physiology, chemistry, and physics, were drawn upon for facts, which, though regarded as still unproved by the cultivators of these sciences, were applied with entire confidence to others. At this time, therefore, little that was useful could be obtained from German treatises, in medical literature—little that was trustworthy, or really important.

In the third place, a nomenclature was adopted, partly in imitation of the different philosophies, and partly framed to suit the new theories of individuals. That it increased the difficulty of comprehending objects by denoting subjective ideas, was no objection. Names, in themselves derived from sources foreign to the science, were rendered more obscure by the various senses which individuals had attached to them. The custom also arose of substituting for the ancient appellations, others which were new and of difficult formation. It is especially because this fault is gradually in course

of amendment, that the French and English find themselves at length able to understand the German writers, and on this ground they may, perhaps, be excused for having hitherto remained so ignorant of their productions.

During this period, which will be yet looked upon as especially the ideal, we suffered indirect injury from the fact, that much time was lost for the enlargement of the boundaries of medicine, which meanwhile was distinctly effected in France and England. It need only be recollected how, in those countries, the doctrine of inflammation, cow-pock, pathological anatomy, itself so wide a field, cutaneous disease, auscultation and percussion, lithotrity, many new remedies, &c., became objects of discovery and of improvement. We participated fully in the advantages of these; but, engaged as we were in other directions, few original discoveries were made in Germany. We boast, indeed, of having first discovered percussion, and thought of lithotrity. If justly, it is the more to be lamented that the value of these discoveries was not better understood.

Of the various branches of medicine, surgery, ophthalmology, and midwifery, which, from their nature, are the most free, were also the most developed. Ophthalmology presents in its improvement a very remarkable phenomenon; and surgery, favoured as it was by war, elevated itself both in external rank, and internal value. It was especially pathology which suffered the greatest injury at this time, and was most impeded in its progress. It has been already observed, that this period of our medical history is now ended. The philosophical systems, from which science in general, and especially medicine, received its peculiar character, have at present lost much of their control. Medicine is now free, and advances by itself in the road of experiment, independent even of that material direction which philosophy itself, in the system of Herbart, has lately taken. Medicine now seeks to approximate more closely to the pure natural sciences. It seems probable, indeed, that, disgusted with theory, it will throw itself with increased zeal into the world of material objects. Such a change, to those acquainted with the history of medicine, will seem perfectly natural. Already a strong zeal is felt to participate in the new efforts in physiology, anatomy, and pathology. On one hand, experimental results are demanded, and conclusions based upon facts; on the other, material objects are examined with microscopic and micrometric nicety. It now remains to show, by certain examples, how much of the ideal still continues in pathology, with its defects and its disadvantages. Two examples will serve to show this; the first of which is chosen because it is new; the second, because it has acquired considerable importance.

"Comparative Ideal Pathology" is the title of a work by Charles R. Hoffmann, which appeared in 1836. Its peculiar object is to discover the normal vital phenomena, pertaining to disease, in other grades of organic life, and it directs its researches to the inferior animals, comparing the condition of man in various

diseases with that of these animals in health. The following are examples. Rheumatism is considered analogous to insects; for the essence of rheumatism consists in this, that in it the fibrous membrane, which in its normal state has the office of an insulator, withdraws itself from the control of the external skin, and, in place of this, enters into correspondence with the planetary world. Now, among animals, insects possess a fibrous envelope in place of the epidermoid. Again, in scrofula the subject is striving to develop himself in the manner of insects, by metamorphosis, for the scrofulous subject is a human larva. In rickets, the effort is to change into an invertebrate animal—into a molluscus. Dropsy consists in the degradation of the man to the rank of hydatids, &c. Thus the ideal pathology discovers a prototype of every disease in animals, and the descent of man to one of the grades below him, when affected with disease. Resemblances of diseases to plants and minerals, equally striking, may be discovered in the same manner. The author proposes, in fact, to put forth a fauna nosologica.

One system of pathology, and its teacher, are now engaging, in no small degree, the attention of the Germans. The teacher is Professor J. L. Schönlein, formerly of Würzburg, now at Zürich, and so much of his system has become known, as an unlawful and unacknowledged publication of his lectures can give, and as his converts and pupils have in various ways communicated. This system, however, has had so many and so respectable followers, that the school is neither deficient in the number, nor the name of its members. It is, indeed, not so much a doctrine as a system, and, as it calls itself, a natural system. Its advantages require no farther illustration here, and have been fully explained elsewhere. Its scientific description of diseases in place of definitions, its attention to external phenomena, especially of chemical and physical character, and in relation to pathological anatomy, and the extensive nature of the whole scheme, cannot here be dwelt upon; and as little can any judgment be offered in regard to its peculiar features. What seems to adhere to it of the already mentioned general defects of a period now elapsed, may here be pointed out. Any prejudice against this school is little to be feared; on the contrary, the disposition generally felt to favour this mode of treating pathology, is calculated to inspire a caution, lest we be carried too far by the influence of the opposite bias.

The system or school of Schönlein has little of mere speculation. It resembles the philosophy of nature so far only as that it aims to treat medicine as a natural science. Between the two, however, the distinction holds, that the philosophy of nature contemplated man in his connection with the series of organised beings, his life as part of the life of nature; and that it regarded disease as a deviation from the normal life; in short, that it saw in disease a condition. The Schönlein school sees in disease no deviation from normal life, but regards it as a peculiar life. In their view disease is, as it were, an organism by itself. Farther, the philo-

sophy of nature endeavoured to make its explanation of disease a sequel to its explanation of the general economy of nature. The Schönlein school directs its attention at once to disease itself, and seeks not to explain, but simply to describe it. It offers no definition, but, as is done in regard to organisms, gives only the description. It has its poetry, however, as well as its rival. The faithful observation and examination of a body suffering under disease, and after the disease has proved fatal; the collecting of symptoms, phenomena, and results, seem to it necessary, but still too dry or too grave in themselves. It makes, therefore, a poetical comparison; it changes disease from a condition of the body into an organism—into a plant, for example—and then observes and investigates it. Now, as this resemblance is maintained and carried out, the system thus formed is less a natural than a botanic system. In fact, diseases are divided into families and species; there are among them, phanerogama and cryptogama. We are told of relationships, of the life of disease, of its physiology, its natural history, its seeds, its geographical distribution, its imperfect forms, &c., as in botany.

It must be allowed that plants and diseases admit of a very lively comparison, and that this comparison may be carried on to a considerable extent. The greatest resemblance to plants is to be found in the accidental tissues or parasites, then in the exanthemata, and in the process of inflammation. But when such a comparison, which must always be regarded as a poetical figure, is employed as a guide in the contemplation and distribution of the whole circle of diseases, it cannot fail to happen that it will often lead to error. Here, again, appears a disregard of distinctions; and although the appearances presented are professedly kept in view, there may be a forgetfulness of facts, or an unfairness in the employment of obscure phenomena or unascertained facts, in order to build up a system. On the other hand, the language and mode of representing the subjects are attractive, although the nomenclature is harsh. But the extravagances into which one is led by this botanico-natural treating of disease, appear not only in the false premises assumed by contemplating the disease as a plant, but also in the immediate or remote consequences and conclusions. It is common in medical language to use the word *germ* in a figurative sense. But here we find the term so employed, as to imply that measles are actually the germ of catarrh, and scarlatina of erysipelas. Among cutaneous diseases, the impetigines are botanically classified according to their anatomical forms. Those in which the form is imperfectly developed, are called crypto-impetigines. The elevations of the skin in other forms, are called impetiginous fruits, and in them is distinguished the pericarp from the fruit properly so called. The form of herpes is thus described: "a common pericarp, the fruit arranged in groups, and mostly vesicular." The groups of psora are characterised as a separate fruit stalk, with fruit standing singly. It scarce need be mentioned that the analogy is far more correct, when the exanthem is not compared with the plant

itself, but with the exanthema of plants, which has lately been made familiar to us by Unger. As plants themselves have diseases, this analogy has been applied to human pathology, and we are told of the diseases of diseases, &c. Farther, as the plant has a soil on which it grows, the human body is regarded as the soil of disease. All diseases, therefore, are considered as local. As this point is very disputable in itself, it is still more open to dispute when attempted to be sustained on the ground of such a theory. This, however, need not be so much insisted on in this connection, as the important difference, especially important in its relation to therapeutics, the very object of medicine, viz. that the soil is worthless without the plant; but, in the other case, the body represents the whole value, the disease being worthless, and even a nuisance. This, too, is a distinction which completely separates the calling of the physician from the pursuit of the botanist or the naturalist. In fine, another resemblance may be set up in opposition to the above; one, unless I mistake, not alluded to by Van Helmont, that, namely, of the alimentary canal to the roots of the plant. This analogy is at once drawn from nature, poetical and just.

The Schönlein school also treat of nosology too much in conformity with their leading botanical theory. Their adherents and followers endeavour in this way to improve the science, by tracing new families and relationships, new groups and species, among diseases; and thus still botanising, they seem to be in a fair way to complete, as it were, a flora nosologica. We cannot refrain from again expressing a wish that, by their regard for pathological anatomy—by their regard for all the natural sciences, by which their attention must be especially directed to the electric affinities and to the chemical relations of the secreted fluids—their accuracy in the investigation and application of facts, perhaps with the aid of the numerical method, may be increased, and their pursuit of hypotheses and analogies gradually cease.

Above all, pathologists should once more be reminded zealously to seek after distinctions. The method in which Wichmann, in his "ideas of diagnosis," compared diseases and weighed resemblances and differences, found too few followers at the time, and may well be recommended anew. It were to be wished that medicine, which already recognises the path of experience, and that clear method of investigation by which the natural sciences obtain their great results, as peculiarly adapted to itself, may come to be one of the (so called) exact sciences. Unhappily, we must admit that its character does not justify such a hope. It still plants its foot upon sensible experience, only to rise into speculation. To extend and strengthen this basis seems to be the problem for our next age. In the business of speculation, we can easily perceive, we have already practised ourselves sufficiently. The path which surgery, ophthalmology, and midwifery now follow, and which physiology and anatomy have entered, is, thus far, least frequented by pathology. In this branch we still perceive an obstinate attachment to dogmatism, a confidence in subjective knowledge, which

contrasts more and more remarkably with the progress of other branches of medicine, and of its auxiliary sciences. A spirited adoption of the true method of enquiry seems in fact to form, in regard to rational pathology, the business of the coming age.

CHAPTER X.

SOME FARTHER COMPARISONS.

The Germans unquestionably take the lead in the following branches: the management of schools and universities, political medicine, legal medicine, midwifery, ophthalmology.

There are above thirty medical journals in Germany, in France above twenty, in England less than twenty.

John Hunter may be compared with Shakspeare. Both were self-taught—both represented nature in her true guise, on their respective theatres, and both are the subjects of endless commentaries.

The knowledge of the scientific condition of other countries is much less in France and England than in Germany. In this respect the French exhibit a harmless ignorance, but the English often a prejudiced and injurious indifference. In both countries it is the rising generation which makes the principal effort to obtain some knowledge of foreign medicine.

In France, English medicine is at least better understood than German; in England, French better than German; in Germany, French and English medicine are understood about equally well.

In England, German medicine is somewhat better understood than in France. The English are fast taking more interest in the medical science of other countries. They have a certain dim respect for the Germans, principally because they are not willing to judge of that which is not sufficiently known to them. They find their language hard—their mode of writing and their theories still harder.

In England, hospitals and their wards first served as sources of instruction, and theoretical lectures were added afterwards. In Germany, theoretical lectures at the universities were first instituted, and practical instruction by means of hospitals followed.

A Frenchman and an Englishman, it is said, were once discussing a medical question. When the former had explained his proposition at some length, he enquired whether the latter admitted it. The other replied that he had, from the commencement, considered all this as already established.

The character of physician is most respected in England, and especially in London, if the title be limited to the members of the College of Physicians. For whatever is valuable in itself becomes augmented in value by becoming rare. On the other hand, the

general practitioners, although they have so considerably raised themselves in general estimation, stand lower in this respect than the German and French practitioners. Medical worth is like medical weights—it stands nearly on a par in all countries.

It is found that distinguished theorists may be good practitioners, notwithstanding their character as theorists. As examples of this may be cited Boerhaave, Cullen, Fr. Hoffmann, and the philosophers of nature. We remark in these cases a wide chasm between their theory and their practice. Theorists also may be good practitioners, because they are theorists. It is generally the adherents and pupils who make the connection awkwardly prominent, and thus destroy by union what can only stand separately. This explains how the dogmatic Germans may at the same time be the best practical physicians.

One who wished to detect and expose general faults might say, the French physician thinks more of the disease than the patient; the English, more of some other case in his experience than that before him; while the Germans hold the correct doctrine which Hufeland thus expresses—"generalise the disease and individualise the patient." The French generalise the patient, the English individualise the disease.

Much is said at present of a universal literature, and of melting down the differences in the medical practice of different countries. Nations are indeed advancing toward each other, but climates meanwhile remain unaltered.

THE END.

INDEX.

	PAGE		PAGE
Abernethy, his maxims,	63	Diet, English hospital,	100
Accoucheurs in England,	112	“ French hospital,	50
Amputation in England,	97	Dispensaries, London,	25
Amussat and torsion,	85	Double, his report,	104
Anatomy bill, English,	94	Dupuytren museum,	50
Andral,	48.		
Apothecaries' company,	110	Ecole pratique,	18
“ “ examinations,	29	Edinburgh school, statutes of,	30
Armstrong,	65	Elliotson, his remedies,	65
Army medical board, English,	99	Empiricism in England,	74
Auscultation and percussion,	41	Examinations, French medical,	104
Autoplasty,	80		
		Fauna nosologica,	122
Bandaging in France,	79	Foreigners in Paris,	22
Baumès and his opinions,	92	French medicine, changes in,	103
Bell, his discoveries,	35		
Bichat, his labours,	40	Gall and Spurzheim,	55
Bleeding in England,	64	General practitioners in England,	111
Blennorrhœa and blennorrhagia,	55	Gensoul, his nasal catheter,	87
Botanic system of medicine,	123	German medicine,	118
Bouillaud on rheumatism,	70	“ “ ideal period of,	121
Brighton,	73	Good, Mason, his treatise,	60
Broussais,	37	Graham, James,	75
Brownism in Germany,	118	Graves, Robert, his practice,	60
Burking in England,	94	Guthrie, his practice,	102
		Guy's hospital,	24
Calculus, frequency of, in England,	96		
Cambridge, medical examinations at,	112	Hamilton, James,	63
Caoutchouc beds,	65	Hay fever,	70
Cataract needles, Jacobs',	102	Heart, rheumatism of,	67
Catarrhus œstivus,	70	Helcology, German,	98
Catheterisme forcé,	81	Heurteloup and lithotriety,	83
Chatham military hospital,	100	Hoffmann's ideal pathology,	121
Cheltenham,	71	Homœopathy in England,	76
Chevalier Taylor,	75	Hôpital de l'Ecole,	20
Chloruret of soda,	47	Hospitals in Paris,	18
Chomel and typhoid fever,	45	“ London,	23
Civiale and lithotriety,	82	Hunterian museum,	109
Clamart,	18	Hunter, John, his labours,	31
Climate, English,	27, 66		
Clinical lectures in London,	26	Ideal period in Germany,	121
Clinics in Paris, how conducted,	20	Impeliginous fruits,	123
College of physicians,	106	Inflammation,	31
“ “ rules of,	108	“ two doctrines of,	32
“ “ surgeons,	109	“ writers on,	33
“ “ examinations by,	110	“ specific,	89
Concluding comparisons,	125	Iodine, use of,	65
Concours, account of the,	21	Irish medical schools,	106
Creosote,	65		
Cryptogamous diseases,	123	Jacobs' cataract needles,	102

INDEX.

	PAGE		PAGE
Joubert's new doctrine, . . .	56	Quackery in England, . . .	74
King's college, . . .	115	Quartier, Latin in Paris, . . .	17
Lancet, the, its views of reform, . .	113	Reform in France, . . .	104
Larney, . . .	79	“ in England, . . .	113
Leamington, . . .	73	Rheumatism of the heart, . . .	67
Leeches, . . .	40	Rhinoplasty in England, . . .	98
Lisfranc, . . .	80	Ricord and his experiments, . . .	51
Lithotripsy, its progress, . . .	82	Roux, . . .	79
“ in England, . . .	97	“ his practice in cataract, . . .	86
London, topography of, . . .	23	Saunders, . . .	101
Long, St. John, . . .	75	Schelling, his philosophy, . . .	119
Louis, his opinions on blood-letting, .	35	Schönlein and his system, . . .	122
“ his numerical method, . . .	44	School of medicine, French, . . .	18
“ “ “ its defects, . . .	45	Schools in London, . . .	25
“ on pericarditis, . . .	69	Scottish medical schools, . . .	106
Marshall Hall, his experiments, . .	35	Sea-sickness, . . .	77
Mayor of Lausanne, . . .	79	Speculum vaginæ, . . .	53
Medical Gazette, London, . . .	114	Sphynx, . . .	119
“ and Surgical Journal, . . .	114	Stethoscope, use of, . . .	41
Medical societies in Paris, . . .	21	Stevens, his researches, . . .	65
“ “ in London, . . .	27	Stomatitis, mercurial, . . .	54
Military surgery, English, . . .	99	Therapeutics, French, . . .	50
Morrison and his pills, . . .	75	“ English, . . .	59
Mummy, opening of a, . . .	75	Thompson, A., his observations, . .	53
Museums, English, . . .	95	Travellers, medical, . . .	23
Naval medical service, English, . .	101	Typhoid fever, . . .	45
Nomenclature, German, . . .	120	Ulcers, classification of, . . .	90
Operations in England, . . .	97	University of Edinburgh, . . .	29
Ophthalmology, French, . . .	85	“ of London, . . .	114
“ English, . . .	101	Velpeau, his labours, . . .	84
Orthophreny, . . .	51	“ his ophthalmic practice, . . .	88
Oxford, . . .	77	Vénériens, hospital, . . .	52
“ medical examinations at, . . .	112	Voisin and orthophreny, . . .	58
Paris, its topography, . . .	17	Wakley and the Lancet, . . .	113
Parisian students, . . .	21	Wallace, his enquiries, . . .	55
Parry, Caleb Hillier, . . .	64	Warburton and reform, . . .	113
Percussion, . . .	41	Watering places, . . .	71
Pharmacy in France, . . .	104	Wichmann and his diagnosis, . .	124
Phrenology, . . .	55	Wilson, Philip, on mercury, . . .	61
Piorry, his pleximeter, . . .	43		
Purging method, English, . . .	63		

MEDICAL CLINICS

OF THE

HOSPITAL NECKER;

OR,

RESEARCHES AND OBSERVATIONS ON THE NATURE, TREATMENT, AND
PHYSICAL CAUSES OF DISEASES.

BY I. BRICHETEAU,

PHYSICIAN TO THE HOSPITAL, ETC. ETC. ETC.

"Multum egerunt qui ante nos fuerunt, sed non peregerunt,
multum adhuc restat operæ, multumque restabit; neque ulli
nato post mille secula præcidetur occasio aliquid adhuc adjici-
endi."—SENECA.

TRANSLATED FROM THE FRENCH
FOR THE AMERICAN MEDICAL LIBRARY.

PHILADELPHIA:
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1837.

ADVERTISEMENT.

In the following translation, one or two of the memoirs of Bricheteau—the “Eloge on Pinel,” the preliminary “Considerations on the Art of Observing,” and the remarks on “Risus Sardonius”—have been omitted, partly because they were not possessed of much interest, and partly because portions of certain of them had already appeared; on both which accounts they ought not, perhaps, to have been admitted by the author.

M. Bricheteau has enjoyed extensive opportunities for witnessing disease; and although his mind does not appear to be one of the most logical or precise, his observations furnish materials for thought, and are illustrative of the therapeutics adopted by the majority, perhaps, of French practitioners in the diseases referred to.

ROBLEY DUNGLISON.

Philadelphia, August 1, 1837.

APPENDIX

The following is a list of the names of the persons who have been appointed to the various offices of the State, and who have taken the oath of office, and are now acting in their respective offices. The names are given in alphabetical order, and the offices are given in the margin.

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NAME	OFFICE
ALLEN, J. H.	Attorney General
ANDERSON, J. W.	Comptroller
BROWN, J. M.	Recorder
CLARK, J. L.	Register
COLEMAN, J. R.	Surveyor
DAVIS, J. E.	Assessor
EDWARDS, J. F.	Commissioner of Agriculture
FERGUSON, J. G.	Commissioner of Education
GILBERT, J. H.	Commissioner of Fish and Game
GRANT, J. I.	Commissioner of Health
HARRIS, J. J.	Commissioner of Labor
HENRY, J. K.	Commissioner of Mines
HOBBS, J. L.	Commissioner of Railroads
HUGHES, J. M.	Commissioner of State Lands
JACKSON, J. N.	Commissioner of State Prisons
JONES, J. O.	Commissioner of State Hospitals
KELLEY, J. P.	Commissioner of State Parks
KIMBALL, J. Q.	Commissioner of State Buildings
KNOX, J. R.	Commissioner of State Archives
KRISTENSEN, J. S.	Commissioner of State Libraries
LANE, J. T.	Commissioner of State Museums
LEWIS, J. U.	Commissioner of State Parks and Recreation
LYNCH, J. V.	Commissioner of State Forestry
MAHONEY, J. W.	Commissioner of State Fisheries
MARTIN, J. X.	Commissioner of State Game and Fish
MCCOY, J. Y.	Commissioner of State Game and Fish
MCCOY, J. Z.	Commissioner of State Game and Fish

PREFACE.

For upwards of thirty years, those physicians who have been placed at the head of scientific movements, have collected facts with so much ardour, and with such a spirit of exclusion and enthusiasm, that theory has generally found extremely little space in their writings. They may, consequently, with some foundation be accused—if not of having raised a levy of bucklers against reasoning, as a distinguished physician of our own time has ingeniously remarked—of having at least attached an undue importance to facts, to the prejudice of induction. Under such circumstances, and when a reaction is beginning to take place against a defective method, which consists in multiplying facts with too little discernment, can we expect to see fresh cases well collected? Has not an author to apprehend that he may be maliciously accused of again forming mere journals of cases: of relating trifling histories in the manner of Forestus, Henricus Abhers, Salmuth, and others; or of tracing aphoristic sketches after the manner of the analyst Pinel? The accusation may at first seem specious; but before assigning any weight to it, may it not be asked whether, at the present day, notwithstanding the superabundance of facts, we can continue to follow the road offered to science and letters by Descartes, without collecting fresh ones; and if, without their assistance, we can profit from the ever requisite advantages of philosophic doubt, and from those of the experimental method? Unquestionably not. Go on collecting, we would say to the detractors of observation, but with discernment, and ultimately the superior man will be found, of whom you yourselves speak—the man who will know how to seize hold of the relations and the systematic bonds which must enchain all facts together.

Hence, although medical literature may be surcharged with facts that are not always useful, it would be erroneous to conclude from this that we could give up the collection of fresh facts without inconvenience; for these may be destined to furnish some links to the chain which must one day unite together all medical knowledge; or to add some *millimètres* to the encyclopediac pyramid of Bacon. Let it be well understood, however, that it is not isolated facts, and still less facts confirmative of demonstrated truths, that we should set about collecting, but cases susceptible of presenting new bases for science, fresh materials for induction.

We may add, that if we attempt to compute the medical cases published, we shall find that their number is prodigious ; but, on examining them closely, we are not long in observing that all are not exact and conclusive ; hence the necessity of following the advice of Morgagni, who affirms, that it is not enough to count them, they must also be weighed : *non enumerandæ sed perpendendæ sunt observationes*. On the present occasion we may remark, that many publications of this nature which daily appear, although collected in hospitals and at the bedside, do not fulfil the desired conditions. It too often happens that they are the productions of by no means attentive students, or of young physicians still novices in the career of observation, who hasten to publish before time and experience have given their sanction to the premature conclusions they have deduced.

Select and well observed facts appear to us so valuable, that we esteem it a duty in the physician, who wishes to aid in the improvement of science, to collect those that seem to him of a nature to enlighten the yet obscure points of his art ; and should he be successful in raising, by this means, but a corner of the veil that still covers the depths of medical science, he will have merited well of humanity. This duty we have endeavoured to fulfil as well as our feeble means would permit, by publishing that which we believed useful in our own observation ; but it must not be inferred from what we have just said of the importance of facts, that we shall neglect theory : on the contrary, it will find considerable space in this work ; but it shall always be an immediate deduction from observed cases.

The present volume is a first fasciculus, which shall be followed by others as soon as the number of materials seems sufficient ; and, without entering into an engagement with the public for any fixed time—an engagement which the very nature of the work would forbid—we may offer the assurance that we shall exert all desirable zeal and expedition to terminate our undertaking, the principal object of which is to make the physical causes of disease better known and appreciated.

It is pleasing to us to offer, in this place, a public testimony of our gratitude to the *élèves internes*, full of hope and promise, MM. Bazin, Tixier, and Beau, who aided us in the observation of facts, and to our excellent friend M. Ledain, who constantly attends at the visits made in the hospital, assists at our clinical conferences, and does not hesitate to mix with the pupils, and to discuss with them the still debatable points of a science which he cultivates with as much profit as disinterestedness.

The title of this work will not be a motive for excluding some cases collected out of the hospital, when they may appear to be of a character to strengthen a theoretical point. We may also insert some previous productions when they have any analogy with the subject of our new researches.

CONTENTS.

	PAGE
Topography of the Hospital Necker.	1
SCIRRHOUS AFFECTION OF THE ŒSOPHAGUS AND PYLORUS.	
Difference between that disease and cancer.	3
GENERAL ERYSIPELAS.	
General erysipelas as a consequence of venesection—Death.	6
ACUTE RHEUMATISM.	
Acute rheumatism treated successfully by the tartarised antimony—Relapse— Fresh cure by the same means.	10
Acute rheumatism of the joints, treated by tartarised antimony and blood-letting.	12
Acute articular rheumatism, cure by the tartarised antimony in five days.	13
Action of the tartarised antimony in a high dose in the phlegmasiæ.	17
TUBERCLES.	
Tubercle of the spinal marrow.	19
Tubercles in the cerebellum and tuber annulare.	20
Tubercle in the right peduncle of the brain.	21
PNEUMOTHORAX AND VOMICÆ OF THE LUNGS.	
First case. Pulmonary phthisis—Pneumothorax—Tinkling (<i>tintement</i>)—Metallic vibration—Pulmonary fistula—Caverns—Crude tubercles of the spinal marrow.	23
Second case. Pulmonary phthisis—Pneumothorax—Metallic tinkling—Pulmo- nary fistula—Pleuritic effusion.	25
Third case. Pulmonary phthisis—Metallic tinkling—Perfect pectoriloquy—Cavi- ties in the upper lobes of the lungs—Slight effusion into the pericardium.	26
Fourth case. Phthisis pulmonalis—Pneumothorax—Pleuritic effusion—Fluctua- tion on succussion—Metallic tinkling and vibration—Cessation of the tinkling for some days before death—Obliterated pulmonary fistula.	27
Fifth case. Pleuro-pneumonia—Fall on the chest—Vomica—Consecutive phthisis —Pectoriloquy—Tinkling of a peculiar kind—Extensive cavity—Cicatrices manifest at the exterior of the lung.	30
Sixth case. General erysipelas—Inflammation of the right lung—Vomica—Cure.	31
Seventh case. Encysted vomicæ terminating by the expectoration of pus with a membranous envelope—Cure.	33
INFLUENCE OF HYPERTROPHY OF THE HEART ON THE BRAIN AND LUNGS.	
SECTION 1. Of the influence of the heart and arterial circulation on the brain, and on the cerebral functions—On the connection between hypertrophy of the left ventricle and different diseases of the brain, such as cerebral congestions, apo- plexy, softening of the brain, mania, &c.	42
Sanguineous congestions of the brain. Cases 1, 2, 3, 4, 5, 6, 7, 8.	56
Effusion of blood into the cerebral substance. Cases 9, 10, 11, 12, 13, 14, 15, 16, 17.	61
Softening and disorganisation of the brain, with and without effusion of blood. Cases 18, 19, 20, 21, 22.	68

	PAGE
SECTION 2. On the influence of lesions of the lung on dilatations of the heart—Of that exerted by hypertrophy of the right ventricle on the pulmonary circulation, and on hemorrhages of the lungs.	77
Cases 1, 2, 3, 4, 5, 6.	84—90

METHODICAL COMPRESSION.

Researches and observations on the employment of methodical compression in dropsies, and particularly in ascites.	91
Cases 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11.	92—100

OVARIAN DISEASE.

Disease of the ovary of the right side simulating extra-uterine pregnancy.	104
Remarks.	107

PERICARDITIS AND ANEURISM OF THE HEART.

Of the wheel sound (bruit de roue), the sound of the friction of new leather (frottement de cuir neuf), or of rubbed stuff (d'étoffe froissée); of the bellows sound (bruit de soufflet) in the cavities of the heart and in the arteries.	109
Cases 1, 2, 3, 4, 5, 6, 7, 8.	109—120

BILIARY CALCULI.

Researches and observations on the symptoms produced by biliary calculi recently formed, and on the best means of treating them.	128
Cases 1, 2, 3, 4, 5.	129—136
Symptoms that indicate the presence of biliary calculi.	137
Treatment of symptoms caused by biliary calculi.	139

MEDICAL CLINICS.

TOPOGRAPHY OF THE HOSPITAL NECKER.

The Hospital Necker is situated at the southwestern extremity of the *faubourg* Saint Germain, in a very salubrious situation, surrounded by gardens; at a convenient distance from the river and from every kind of manufactory of an unhealthy character, and which exhales noxious effluvia. It is built on a dry, calcareous, firm soil; the main buildings are situated east and west; the northern, eastern, and southern winds blowing there but little. The elevation of the soil and the temperature are nearly the same as those of the Observatory, and the vicinity of the garden of the Luxembourg. Unfortunately, the water for the use of the sick is furnished by the aqueduct of Arcueil, and it contains more sulphate of lime than that of the Seine, which often occasions diarrhœa. Ass's milk of good quality is to be had in abundance; and there was an excellent dairy, which has been temporarily suppressed, but, it is hoped, will soon be re-established. The alimentary regimen of the hospital is good, and the attention bestowed on the sick is generally assiduous and even affectionate; circumstances which in some measure make amends for the defective construction of the establishment, a portion of the buildings of which had formerly a very different destination.¹

This unfortunate circumstance, which is observed also in some other hospitals, and especially at *La Maternité*, could be removed by a small share of the millions that are devoted to the buildings for luxury and ornament, which are every where erected at a heavy expense. It must be confessed that poverty, misfortune, and disease are not considered to have legitimate rights on our budget of millions; and modest asylums for health do not strike the eyes like the Temple of Glory or the triumphant arch of the *Barrière Etoile*. It may be truly said, that the vanity of man, which is so frequently exhausted on the tomb of the dead, attends with regret to the preservation of the living. When we reflect that it took no less than the Asiatic cholera to occasion the erection of some petty

¹ I know not whether it is to the regimen, or the locality, that the relief experienced by the consumptive is to be attributed. It is notorious that they live longer in the Hospital Necker than in the other hospitals.

fountains in the narrow, dirty, and badly ventilated streets of the capital—which possesses a provisional opera that has cost several millions of francs—we may pardon those ardent and philanthropic souls who have doubted the benefits of civilisation on masses.

Situated near the quarter of Gros Caillou, and the city of Vaugirard, which has no hospital for its seven thousand inhabitants, the Hospital Necker is insufficient; and they are frequently under the painful necessity of refusing patients, which makes the utility of a more extensive establishment in this locality more and more felt. In the same situation one might be constructed which would be more in accordance with the population of the surrounding quarters. It would be consolatory to humanity, by the aid of such improvements, if not to suppress, to greatly diminish, the number at the Hôtel-Dieu, which is seated over the river, is masked by small streets, and old buildings, and is unhappily situated in the lowest, wettest, and dirtiest part of Paris.

Such, indeed, has long been the wish of those philanthropists, who properly think that small establishments of the same kind should be preferred to large hospitals; and that the *foyers* of infection must be less extensive in them, and the mortality less.

The year 1831, the date of my appointment to that hospital, was fruitful in pneumonia, and typhoid fevers. In the year 1832 it was absorbed by the cholera morbus, of which enough has been said already. In the winter of 1833, at the commencement of the year, there were but few of those cases of pneumonia, which had been so prevalent in 1831, and which were so successfully treated by the tartarised antimony.¹ And what is somewhat remarkable, although not very uncommon in the *fasti* of the art, this mode of medication offered but little chance of success in the small number of cases which occurred to us.

We noticed another fact not without interest in the history of this heroic agent, and the therapeutics of pneumonia:—that, with the advantages of the tartarised antimony, the symptoms which it sometimes produces disappeared. We observed no stomatitis, no pustular eruptions in the interior of the mouth; and several, to whom the medicine was given, exhibited no appreciable phenomenon, no evidence of action either on the patient or on the disease. The most numerous diseases of the season were different shades of influenza (*grippe*), which generally yielded to the administration of emetine; given at times as an emetic (two to six grains), at others, in small doses (two grains), in mixtures to be taken by the spoonful.

During the spring and summer, small-pox, varicella, and erysipelas, were the most common diseases. There were, indeed, so many cases of the last affection in our wards, that there was reason to believe in the existence of a general cause acting on masses. Nor was the Hospital Necker the only one that showed this peculiarity.

¹ See the Archives de Médecine, 1831; and, farther on, the article relative to rheumatism.

In autumn, rheumatism predominated in the wards, which was treated successfully by the emetic tartar in large doses, as we shall see hereafter.

SCIRRHOUS AFFECTION OF THE ŒSOPHAGUS AND PYLORUS.

Difference between that disease and cancer.

A hackney-coachman, forty-six years of age, who said he had been sick for six months, entered the hospital on the 30th of January, 1833. This man, who was tall and of a vigorous constitution, had been unusually strong in his youth. At this time he was pale, lean, and his appearance announced deep-seated decay. He could only take fluid, and this got with difficulty into the stomach, owing to considerable dysphagia. He was troubled with nausea, and constant flow of saliva as soon as he prepared to take food; but when deglutition was accomplished, digestion went on readily and without pain; no tumour could be felt in the epigastric region, which might be pressed upon in every direction without causing the least suffering. With the exception of the dysphagia, which made us suspect the existence of an affection of the lower portion of the Œsophagus, he was tolerably well, and remained in a stationary condition; but on the 20th of February, he was taken with a pleuritic pain which carried him off in two days, in spite of all the efforts of art.

On opening the body, twenty-four hours after death, traces of pleurisy were found at the outer surface of the right lung, and an effusion of about a pint of serous fluid into the cavity of the thorax of the same side. The lower part of the Œsophagus was transformed into a lardaceous tube half an inch thick, and of remarkable whiteness. The same transformation occupied the posterior and superior fourth of the stomach, the capacity of which it had reduced to the diameter of about an inch. The rest of the viscus, as well as the pyloric opening, was in a healthy state, and formed a contrast with the scirrhus portion. The liver, the spleen, and the diaphragm adhered to the diseased part of the stomach—an accidental circumstance—holding it down, and not permitting it to be explored by the hand. The intestinal canal was healthy.

The kind of fibrous transformation, which the lower parts of the Œsophagus and upper portions of the stomach had undergone in this case, was, I have remarked, of a dull white colour, and exactly like a fresh cartilage, obtained on opening an articular capsule. There was neither redness, congestion, ulceration, nor fungosity, at its surface.

It would be easy to adduce several similar cases, and especially that of a man who died without much suffering, in the ward St. Joseph, in a state of complete exhaustion and marasmus, and who was affected with no other symptoms than vomiting once every

twenty-four hours. After death the pyloric orifice was found very much narrowed, and the annulus of communication with the duodenum converted into a sort of fibrous and lardaceous substance, about an inch in diameter, without any other organic lesion. A goose-quill could scarcely be passed through the pylorus. This man died, owing to the mechanical obstacle to the passage of the food; for a square inch of scirrhus degeneration in any other part than at the pyloric orifice would scarcely have disturbed the economy so much.¹

The succinct exposition of those two cases, which we might confirm by several others exactly like them, gives us an opportunity to examine the question, whether scirrhus of the digestive organs, such as those of which we have spoken, be the first stage of cancer, and whether it must necessarily proceed to softening and ulceration, as the most modern authors presume. Our opinion, we may say in advance, is entirely opposed to this mode of observation in pathological anatomy; and we refer many of the lardaceous stationary degenerations to the fibrous transformations. This opinion is founded upon the nature of the accidental lesion, and the symptoms originating from it. Let us see what description is given by authors of scirrhus affections in general. Scirrhus, says M. Cruveilhier,² is semi-transparent when divided into thin slices, without any linear arrangement; often lobular; having a consistence varying from that of fibro-cartilage to that of lard, which it resembles in appearance, and seeming to be constituted of a fibrous and cellular tissue penetrated by albumen. . . . Scirrhus invades all the tissues, either primarily or consecutively; but it affects an unfortunate predilection for tissues that are very sensible, and at the same time abundantly supplied with white vessels; supervenes spontaneously or succeeds to an engorgement from some external cause, or of a scrofulous, venereal, or other character, and commonly attacks either the male or female at the critical period when they become unfit for reproduction.³

In scirrhus, the pains are lancinating, and shoot like lightning. The affection never retrogrades towards the primitive organisation; it proceeds, at times, with frightful rapidity, and destroys in a few months; at other times its progress is more chronic, remaining stationary for ten or fifteen years, and not appearing to hasten the time of death. It extends by continuity of tissue, and by lymphatic absorption, killing, at times, without passing to further alterations, but most commonly becoming the seat of an internal process; in some rare cases it falls into a state of gangrene, and is wholly thrown off; most commonly it passes to a state of ulcer, or rather becomes softened, and like the brain of a new-born infant.

¹ A similar case to this occurred, not many months ago, in an estimable inhabitant of Baltimore. It was attended by the editor in conjunction with an experienced friend, Dr. Pue, of that city.—*R. D.*

² *Essai sur l'anatomie pathologique en général.*

³ *Qu.*? At what age does the male become unfit for reproduction?—*R. D.*

We ask whether such a description be applicable, in whole or in part, to the affection that engages us? Can the less characteristic traits of this description be found in the alteration of tissue presented by the patients whose cases have been detailed? As for the mollescence, which must, it is presumed, occur in these cases, we ask, again, where is the proof that this change of consistence must supervene? We think that any disease whatever, which proceeds slowly, and has remained fifteen or twenty years stationary—to adopt the figures of authors—has arrived at the term of its course, and that it is not likely to undergo any fresh metamorphosis. When such an affection is seated in a secondary organ, it plays no part in the morbid condition of the organism; and when, unfortunately, it has its seat in one of the viscera, whose integrity is essential to the maintenance of life, it can only act as a mechanical obstacle; either it may deprive the tissues of their contractile or extensible property, or obstruct the passage of materials for the nutrition and recomposition of the organs. This is exactly what happened to our three patients, who died of inanition without any suffering. A man, whom we have just seen expire of the same fibrous transformation of the pylorus, could not believe that he was sick, so exempt was he from pain. He slept soundly; ate with pleasure; but vomited every morning, almost without effort or pain, the food which he had taken the night before, in a half digested state. He was exhausted for want of nourishment; and, on examining the body, the pyloric orifice was found scirrhus, and so contracted that it scarcely admitted a goose-quill.

The patients, of whom we have spoken, were, in other respects, of sound and vigorous constitutions, and presented no sign of scrofulous affection, or of cancerous diathesis. We consider, then, that it is an abuse of language to place indolent scirrhus of the pylorus, cardia, œsophagus, and intestines, amongst the varieties of cancer; it is much more proper to assimilate it to the fibrous substance of the uterus, and other analogous transformations, which we are surprised to meet with on the dissection of persons in whom it had never been suspected, because it had produced no disorder.

Lastly, we cannot admit that this kind of lesion must necessarily pass into another state, when it has existed for a long time, during which it has been subjected to every chance of excitation capable of hastening its termination. The texture of an abnormal tissue, which has existed twenty years, ought to have long passed its apogee; [?] its history is finished, otherwise it could never have an end.

GENERAL ERYSIPELAS.

There are periods when certain causes act at once upon a number of sick in an hospital; and especially upon such as have been in for a long time. A kind of endemic arises, which attacks all

who are predisposed to it, either by debility, the consequences of previous disease, or some individual susceptibility. Thus, in the months of June and July, 1833, we saw a great many cases of erysipelas, confined, at times, to the face, at others, to the extremities; but at others, spreading, in succession, over every part of the body. In one patient, the operation for blood-letting was the occasional cause of erysipelas, which began on the arm, and terminated on the lower limbs, after having invaded the head and trunk. In another, the disease was owing to a blister applied to the temple for headache. A third was affected with erysipelas from a blow on the head. The same disease was likewise observed in a child four or five months old, which had been vaccinated, and had three vaccine vesicles on each arm. The erysipelatous eruption began at the inflammatory areola surrounding the vesicle, and soon became general.

These cases of erysipelas were not severe when limited to a part; they were extremely dangerous when they affected, in succession, several regions of the body. They rarely presented precise indications of treatment.

Blood-letting, and other evacuants, produced little or no salutary effect. A blister placed on the centre of the inflamed portion of the skin was not attended with any success. In general, whatever plan of treatment was adopted, the disease pursued its wonted course, and terminated, about the end of a fortnight, in health, when the disease was limited; and almost always in death, when the affection became general. We shall relate two cases of the latter, as it is not a common affection.

GENERAL ERYSIPELAS, AS A CONSEQUENCE OF VENESECTION—DEATH.

A woman, aged 43 years, of good constitution, had suffered, for three or four days before her admission into the hospital, with vague pains in the loins.

On the 6th of August (the day of her admission), these had augmented so much that she could not bear pressure on the pained part. There was no symptom of mischief in any of the abdominal organs. *Prescription*—Barley water with honey; tepid bath; absolute diet.¹

On the 8th, the pain was as violent as on the day preceding, and it had extended to the thighs, so that she could scarcely move. Pulse strong and more frequent. *Prescription*—Same drink; emollient cataplasms to the loins; emollient clysters; bleeding to three cups; absolute diet. The bleeding was followed by marked relief. Blood buffy.

¹ The word *diète* is used by the French, at times, for a regulated diet adapted to the affection; at others, for abstinence from food and drink; "absolute diet" emphatically means the latter. When the author uses the word "diet," abstractedly, it has been simply translated "diet," as it is not always clear in which of the two acceptations he employs it.—*R. D.*

On the 10th, 11th, and 12th, the improvement continued. Pur-gative injection to remove constipation of four or five days' duration.

On the 13th, the parts surrounding the wound made by the lancet were red and painful. The pain extends to the arm, which is slightly swollen. Emollient baths to the arm; cataplasms; diet.

On the 14th, the redness was more vivid, and the tension greater, especially along the vessels of the arm. *Prescription*—Lemonade; twelve leeches to the arm; tepid bath.

On the 15th, the redness has extended, and the tumefaction has augmented, so as to invade the whole arm. The patient complains of chills; increased frequency of pulse. There can be no doubt of the existence of erysipelas. *Prescription*—Fifteen leeches; cataplasms; diet.

On the 16th, 17th, and 18th, the phlegmonous (?) inflammation has made great progress, occupies the whole arm, and is studded here and there with vesications, whence a citron-coloured serum is discharged. *Prescription*—Barley water with honey; arm bath, twice; cataplasms.

On the 19th, the erysipelas has extended rapidly over the anterior and posterior surfaces of the chest; skin red, tumefied, and sensible to the touch; respiration frequent and difficult. *Prescription*—A laxative mixture, with an ounce of cream of tartar; cataplasms; diet.

On the 21st, the exanthema has invaded the whole of the thorax, the skin of which has become shining; respiration hurried; complains of intolerable pain in every part of the body; watchfulness. Same prescription.

On the 22d and 23d, the erysipelas remained stationary. Scanty alvine evacuation; the tumefaction of the arm has diminished; and desquamation is commencing on the parts first affected. *Prescription*—Veal water, with an ounce of sulphate of soda. This cathartic occasioned three evacuations.

On the 26th, the erysipelas reached the abdomen, the loins, and nates; the pulse began to loose its firmness, without being less frequent; abdomen painful. *Prescription*—Lemonade; emollient clysters; cataplasms.

On the 27th and 28th, the patient each day lost strength; the pulse became more and more feeble; prostration extreme; slight diarrhœa. *Prescription*—Gum water, with syrup of quinces; starch clyster.

On the 29th and 30th, the prostration augmented more and more; the erysipelatous redness had almost disappeared.

On the 31st she died.

On dissection, which was carefully performed, nothing was seen to explain the cause of death; there was no pus in the vein opened by the lancet, or in the veins of the vicinity; no lesion of the intestines; none of the dermis.

GENERAL ERYSIPELAS—DEATH.

A woman, aged 22 years, of bilious temperament and delicate constitution, whose menstrual periods occurred irregularly, was admitted into the hospital on the 28th of April, 1833. She had complained for a long time of palpitation and pain in the præcordium, respiration difficult, lower extremities swollen.

Leeches were applied at different times over the region of the heart, with cupping-glasses over the bites; and a large dose of the syrup of asparagus¹ was administered. Fresh symptoms succeeded to the momentary improvement, which required blood-letting.

The bleeding produced relief, but the puncture made by the lancet inflamed and became painful, the pain extending in the direction of the veins; pus oozed from the small wound.

In the course of the eight days following, four applications of leeches were made on the affected limb; it was covered with emollient and narcotic cataplasms, and diluent drinks were directed, sharpened (*aiguisée*) by small doses of emetic tartar. Under this treatment, the symptoms produced by the blood-letting disappeared, and the patient was put upon a treatment proper for the affection of the heart. Soon fresh symptoms required a second bleeding in the arm of the opposite side. This operation was performed with the greatest care by an experienced pupil, with a lancet that had never been used.

The same success ensued as after the first bleeding; but along with it the same irritation recurred, followed by pain and swelling, which rapidly extended to the axilla. The application of twenty leeches to the part removed this pain, and appeared to turn back the evil upon its source. A phlegmonous tumour arose near the wound made by the bleeding, and at the inner part of the arm. On the same day, leeches were applied twice; the arm was kept almost constantly in a bath of marsh-mallows, or enveloped in an emollient cataplasm. This did not prevent the development of erysipelas, accompanied by a discharge of pus from the wound made by the lancet, when the limb was compressed from below upwards; fresh leeches were applied; drinks, sharpened by emetic tartar, were added. The disease made rapid progress; the patient complained of chills and general indisposition; the pulse was feeble and frequent; and, notwithstanding the nature of the drinks, there was obstinate constipation.

Soon after this, the whole of the left arm was invaded by the erysipelas, with considerable tumefaction of the whole limb. A blister was applied to the upper part of the fore-arm, in order to

¹ The *asparagus officinalis* is admitted into the pharmacopœias of Amsterdam, Brunswick, Spain, Paris, Geneva, Wirtemberg, and others. Owing to the smell which the *asparagine* communicates to the urine, it has been regarded as diuretic, but there does not appear to be any foundation for the belief. It is not in the pharmacopœias of Great Britain or this country, and is possessed of no virtues to sanction its reception into them.—R. D.

concentrate, if it were possible, the inflammatory fluxion, and prevent it from extending.

The effect of this epispastic was but momentary ; the inflammation was not long in gaining the posterior part of the trunk ; thence it proceeded in front, and to the face, descending over the anterior part of the chest ; the respiration became difficult ; the sleep dull, or disturbed by dreams ; now and then there was slight delirium ; the lower limbs, as well as the abdomen, were soon covered by an erratic exanthem, which diminished proportionately in the parts first affected ; the skin became so painful that it could not bear the slightest pressure ; she fell into a state of stupor, and gave at intervals indications of severe suffering. Death happened on the 4th of July, without any possibility of retarding the progress of the affection.

Necroscopy.—The erysipelatous redness, which was so intense during life, did not now exist ; the skin did not appear diseased ; the abdominal cavity presented nothing unusual ; the intestines were slightly red externally, but internally they exhibited no lesion ; the liver and spleen were likewise in a natural condition.

The lungs were slightly engorged at their posterior part, but nowise inflamed ; the pericardium contained about five ounces of citron-coloured serum ; the heart was of considerable size ; the left ventricle dilated, and its parietes thickened ; the auriculo-ventricular orifices healthy.

The cellular tissue, surrounding the veins of the arm, was engorged, but not in a state of suppuration. The median cephalic vein, which had been opened, was obliterated to a small extent. The brachial and cephalic presented no trace of inflammation. The brain and spinal marrow were not examined.

It can scarcely be doubted that there existed, in this and the preceding patient, a disposition to the diseases with which they were attacked, and of which the operation of bleeding was only the occasional or exciting cause. Bleeding was, indeed, performed daily without any such results. Moreover, in many patients of the same hospital, the like susceptibility to inflammation of the skin, and subcutaneous cellular tissue, was observed under different circumstances ; and such erysipelatous affections evidently, therefore, must acknowledge another cause besides the operation of bleeding. There must, doubtless, be a general cause, as other individuals have experienced the effects of it. The two cases of erysipelas, of which we have just given the history, may be compared, in an etiological point of view, to that of general phlebitis supervening on bleeding, which cannot be referred to the simple wound made by the lancet. There is only this difference between the affections ; that the inflammation of the veins leaves evident and authentic traces of their fatal effects, whilst, after death caused by erysipelas, no organic lesion peculiar to the exanthem may be perceptible. We cannot, then, attribute death to the action of a general inflammation of the skin, and of some portions of the subcutaneous cellular tissue on the nervous system ; it probably results from an excessive exhaustion of the principle of life, which,

having been at strife for eighteen days with the pain, is extinguished by a mechanism that escapes us.

As for the predisposing cause, which gave occasion to the numerous cases of erysipelas observed during our attendance, it partly, perhaps, existed in the atmosphere, and was dependent on the medical constitution of the period. What suggested to us this opinion was, that several of our colleagues affirmed they had observed the same peculiarity in other hospitals.

ACUTE RHEUMATISM.

Acute rheumatism treated successfully by the tartarised antimony—Relapse—Fresh cure by the same means.

A mason, 34 years of age, who had lived in Paris for five months, was admitted into the hospital on the 3d of October, 1833. He had experienced, for some days, acute pains in the joints of the knees and wrists, with rigors and headache.

On the 4th, the pain invaded also the elbow joint. The joints were red and swollen; the skin hot and dry; urine red; pulse 86. The bowels had not been open for ten days. *Prescription*—Whey with an ounce of sulphate of soda; bleeding to four cups; emollient cataplasms.

On the 5th, the patient was in the same condition; no evacuation; the purgative *tisane* was repeated.

On the 6th, the pains were more acute, and extended to the shoulder joint; agitation; insomnia; &c. *Prescription*—Bleeding again, to four cups; whey *emetised* (*émétisé*).¹ 7th, The tartarised antimony in solution has produced several evacuations, and slightly relieved the patient; blood buffy. Lemonade; absolute diet. 8th and 9th, same prescription; broth, twice. 10th, Pains of the joints very acute. Purgative clyster; broth (*bouillons*). 11th and 12th, marked improvement; soup. 13th, Pain of the left wrist exasperated; joint again red, and tumefied. Fifteen leeches were applied; honeyed borage water² was ordered for drink; and half a grain of opium in the evening. 14th, Wrist less painful; but the elbow joint is the seat of a fresh rheumatic fluxion. Twenty leeches were applied to this joint. On the 16th, the elbow joint was less painful, but several others suffered severely; and it became evident

¹ The quantity of tartarised antimony added to the whey is not stated.—*R. D.*

² The *borago officinalis* is not in the British or American pharmacopœias; but it is in many of those of continental Europe. Both plant and flowers are regarded as demulcent, diuretic, and diaphoretic. The distilled water is officinal in Paris and Sardinia, but it possesses, perhaps, but little virtue over simple water.—*R. D.*

that loss of blood was of no service. It was now determined to give the tartarised antimony in the dose¹ of ten grains, with the addition of an ounce of syrup of poppies, in a mixture, to be taken by spoonfuls every hour.

On the 17th, the patient had had only three evacuations, without any inclination to vomit. He felt better, and had four hours' sleep. The same mixture, with twelve grains of tartarised antimony; cataplasms to the joints.

On the 18th and 19th, he was so much relieved that he believed himself cured. He now complained only of slight numbness in the limbs. The mixture of antimony was continued, but in a decreasing dose. The patient asked for food to recruit his strength, and sat up during part of the day. The antimonial mixture was discontinued, and he was permitted to take an eighth part of the usual allowance for diet. On the 21st, he had a fourth part. On the 22d and 23d, he was considered to be cured; and went from the ward into the garden, where he took cold. On the following days, he sat up the whole day; ate half allowance. He felt cold on the 29th, and remained imprudently exposed to the rain. On the 30th, the rheumatic pains returned to the knee joints. Honeyed borage; Dover's powder (twelve grains); cataplasms; eighth part of allowance only. On the 31st, he had a genuine relapse; the joints were as tumefied and painful as at the commencement of the disease. Unable to move himself in bed. *Prescription*—A mixture with eight grains of tartarised antimony, and an ounce of syrup of poppies; rigid diet. No evacuation; the proper tolerance took place immediately, which is of good augury. He was evidently, indeed, relieved.

On the 2d, the same mixture, with ten grains of tartarised antimony and an ounce of syrup of poppies.

On the 3d and 4th, the symptoms rapidly diminished under the influence of the tartarised antimony, administered in a decreasing dose (that is, eight and six grains). On the 2d day, the joints had become free, and he was permitted to take a quarter allowance.

On the following days, the convalescence made rapid progress, and he was discharged from the hospital on the 10th of November, perfectly cured.

This case appears very remarkable, in furnishing us with an example of the efficacy—twice well established—of tartarised antimony in the same case of acute rheumatism of the joints, with inflammatory fluxion, pain, tension, inflammation, and fever; but, in the second place, it attests that blood-letting—general and local, combined—does not cure certain cases of acute rheumatism, and does not even afford relief; a circumstance which, by the way, is uncommon, and was probably owing to the influence of the medical constitution of the season.

¹ The word *dose* is often used by the French writers for the quantity of any one ingredient that goes to the formation of a compound medicine. It is in this sense that it is employed here.—*R. D.*

We may add, that the inefficacy of blood-letting was, in this case, such, that it paralysed, in some measure, the action of the laxatives, and of the emetic tartar in solution, which were used simultaneously with it, although the mode of action of these last agents has considerable analogy with that of the tartarised antimony in a contro-stimulant dose. Lastly, the medicine appears to us to have been administered in this case at the fitting moment: blood-letting had failed, and it is particularly in such cases that it is proper to have recourse to the contro-stimulant method.

ACUTE RHEUMATISM OF THE JOINTS.

Treated by tartarised antimony and blood-letting.

Another mason, aged 40 years, entered the hospital on the 17th of October, 1833. For eight days he had experienced very acute pain in the joints of the knees, shoulders, and wrists. He was unable to walk, and was borne on a litter. Several of the large joints were red, swollen, and could scarcely bear the slightest motion; the skin was hot; pulse frequent (84). Had taken only an infusion of borage.

On the evening of the 17th, the day of his admission, the *élève* on duty administered to him eight grains of tartarised antimony in a mucilaginous mixture, with the addition of an ounce of syrup of poppies. The most painful joints were covered with emollient cataplasms, and he was kept on absolute diet. On the 18th, the tartarised antimony had caused no evacuation; the patient was relieved, although he had slept little. Same mixture, with twelve grains of tartarised antimony, and an ounce of syrup of poppies; lemonade for drink; diet; cataplasms; &c.

On the 19th, the pains were still very acute; every kind of motion augmenting them. No vomiting; but three evacuations during the night. The pulse had fallen from 84 to 52 beats in the minute, but it preserved the same hardness. Tartarised antimony, twenty grains, with syrup of poppies, one ounce, in a mixture; cataplasms; diet.

20th. The medicine has caused no evacuation, but the state of the articulations is still the same, although the pulse keeps at 52 beats in the minute. Venesection to four cups; and, for drink, an infusion of borage; absolute diet.

21st. The pains of the joints have almost wholly disappeared; blood drawn from the arm is very buffy; the pulse less hard, and a little less frequent, which is remarkable, but may be accounted for by the discontinuance of the tartarised antimony. Honeyed borage; cataplasms; broth.

22d and 23d. The improvement continues; the patient complains only of his shoulders, and asks for food. He was allowed soup.

24th, 25th, and 26th. Continues to go on well; walks about, and eats a quarter allowance; feels only slight pains in the shoulders.

These are met by small doses of Dover's powders, which excite copious sweats.

On the 27th, the cure appears to be perfect; the Dover's powder is still continued in the dose of twenty grains. The patient has half allowance of food.

On the 28th, he left the hospital, feeling only a slight stiffness in the limbs, and tottering in his gait.

If the tartarised antimony seems to have failed in this case, it cannot be denied that it exerted an energetic action, as it manifestly diminished the velocity of the circulation; and, moreover, the absence of every kind of evacuation proved that there was a perfect tolerance on the part of the affected organs. It is evident that we were in too great haste to give the tartarised antimony; and it was continued because the patient was in no danger. It appears certain that if blood-letting had been premised, the disease would have yielded, as it afterwards did, to the loss of blood. What occurred in this case tends to support the Italian contro-stimulant physicians, who employ tartarised antimony and blood-letting concurrently in pneumonia. We are of opinion that it is better to premise blood-letting in all cases, where the medical constitution does not contra-indicate its use.

This case may likewise aid in clearing up two points in the treatment of diseases by the tartarised antimony in a large dose. 1st. Its stupefying narcotic action on the circulation—which was strikingly evinced in this case by the rapid reduction of the pulse from 84 in the minute to 52. 2d. The tolerance which was characterised by the want of evacuations. This phenomenon it is unquestionably wrong to regard as a sign of the efficacious action of the antimony in a large dose; as in our patient, the system of medication had not complete success. Another remark, which it appears to us important to make, is this: When the tolerance is established from the first, in those that are treated by tartarised antimony in a high dose, there is no reason to apprehend unpleasant symptoms; even when the medicine does not act efficaciously. In this case, as in many others that have fallen under our observation, no unpleasant effect was produced on the digestive organs.

ACUTE ARTICULAR RHEUMATISM.

Cure by the tartarised antimony in five days.

A chambermaid, aged 33 years, of strong constitution and sanguine temperament, was attacked on the 7th of September, 1833, with general indisposition, chilliness, anorexia, headache, and lassitude in the lower limbs. On the following day she felt acute pains in the knee joints, soon followed by redness and swelling.

On the following days, the joints of the feet, and afterwards those of the upper limbs, became in turn the seat of rheumatic pains, and of other inflammatory symptoms, which are the necessary concomitants.

On the 13th the patient—seeing that her disease increased daily, or at least that to a rheumatic fluxion on one point there succeeded one more violent on another, so that she was unable to use her limbs—had herself conveyed to the Hospital Necker.

14th. She passed a very bad night, without sleep; face flushed; pulse not very frequent (80); heat of skin moderate; joints of the wrists, knees, and elbows painful, red, swollen and bent; the slightest motion gave intense pain; no symptom of gastric irritation. Eight days having elapsed since the invasion of the attack; the pulse being neither very hard nor very frequent; the mouth clammy; and the tongue covered with a mucous coat; it was considered that we might dispense with a preliminary blood-letting, and administer the tartarised antimony from the first. A mucilaginous mixture was consequently given with eight grains of tartarised antimony and half an ounce of syrup of poppies, to be administered by spoonfuls every half hour. For drink, borage water: (absolute diet).

15th. The mixture has occasioned vomiting, and three evacuations from the bowels. Slight improvement in the symptoms. Same mixture, with ten grains tartarised antimony, and an ounce of syrup of poppies: (diet).

16th. The tolerance is completely established, and the patient has had no evacuation. The improvement is progressive; the pulse much less frequent, and the motions more free. Same mixture, with twelve grains of tartarised antimony.

17th. The tolerance continues: the patient has passed a good night: the pains are considerably diminished: a copious diaphoresis has broken out. Same prescription as last evening. Broth, twice (*deux bouillons*).

18th. The patient says she is cured, and wishes to take no more of the mixture, which has caused some nausea. She can rise and aid in making her bed. The swelling and redness have disappeared from the joints; she asks vociferously for food. A light soup was allowed her; but the mixture with eight grains of the tartarised antimony was continued.

19th. She vomited several times, and had some evacuations from the bowels. The *emetised* mixture was now discontinued, and she might be considered cured. She continued, in fact, to improve gradually; and at the end of a month left the hospital, feeling nothing more of the rheumatism.

This case is chiefly deserving attention from the promptitude and completeness of the cure, which was effected in less than a week. The tartarised antimony has, moreover, the honour of it. There was no relapse during the ten days which the patient passed in the hospital after the termination of the treatment. It is worthy of remark, that the tartarised antimony produced an evacuant effect as soon as the rheumatism ceased to exist; doubtless because then controstimulation was no longer practicable; or, if you choose, because there was no longer any relationship between the morbid entity and the action of the medicine [?] We are of opinion that

blood-letting was not necessary in this case, because eight days had already elapsed since the invasion of the disease; and its period of crudity—if I may be permitted the expression—was already accomplished.

We have here a case of acute rheumatism cured in less than eight days by the tartar emetic. I know not whether there are many examples of cures as promptly by blood-letting, which, when repeated, induces a greater degree of debility, and a more tedious convalescence than that which results from this treatment. On the sixth day, indeed, the patient arose and declared herself cured. According to this there would manifestly be economy of time in curing rheumatism by emetic tartar.

As for the unpleasant symptoms that are said to result from this mode of medication, we observed none of them during the whole of the last autumn and the beginning of winter, although we treated, with varying success, more than twenty cases of rheumatism by that method; and I may take this opportunity to say, that if I have limited myself to the detail of three cases, it is owing to my unwillingness to multiply, unnecessarily, facts which are already so numerous in the science, and which, consequently, could not be of any real utility.

To enable the reader to appreciate more completely the action of emetic tartar given in a large dose in the phlegmasiæ, I add here the summary extract of fourteen cases, collected at the hospital, of the employment of this medicine in pneumonia and pleuro-pneumonia; cases which have been inserted in the *Archives Générales de Médecine*.¹ Before proceeding to the therapeutical experiments which form the subject of the work in question, I acknowledge I had doubts as to the efficacy of the tartar emetic in pneumonia; and these doubts had partly been suggested to me by the obscurity in which many of the facts published on this subject were enveloped. They are now wholly dissipated, and I look upon the tartarised antimony as the most energetic, and the most expeditious curative agent in a great number of cases of inflammation of the chest; and I am of opinion that it agrees almost exclusively in certain medical constitutions, which will not admit of the use of the lancet.

The subject of the *first* case had been bled three times: afterwards recourse had been had to revulsives, such as a blister and sinapisms. No improvement had resulted from these agencies: a fatal termination was even apprehended, when the tartar emetic was administered. The patient was however cured.

In the *second* case, a bleeding had been practised by the *élève* on duty, which had produced no advantageous result: two doses of tartarised antimony were sufficient to cause the resolution of the pneumonia, of the existence of which the physical signs left no doubt. This course, whatever may have been its perturbing action on the female who was the subject of the case, did not

¹ Tom. xxx. October, 1832.

prevent the appearance of the catamenia at the ordinary time—which is worthy of remark.

The patient who forms the subject of the *third* case, had been bled twice; yet the physical signs of pneumonia were in no respect diminished. Four doses of the tartar emetic promptly induced that resolution of the inflammation which the antiphlogistic treatment had not even commenced.

In the *fifth* case, a relapse succeeded to the improvement consequent on four bleedings. This relapse was treated by the tartar emetic. Two doses caused it to disappear, and the patient soon got well.

In the *sixth* case, a serious relapse was caused by errors in diet; yet notwithstanding this unfavourable condition of the digestive organs, the tartarised antimony, which had already acted most beneficially on the patient, was again employed with rapid success.

The *seventh* and *eighth* were cases in which the lancet and the emetic tartar were administered concurrently on the first day of treatment, as is done in Italy—the cradle of contro-stimulant medicine; but the last was afterwards continued singly in the dose of eighteen grains, on account of the obstinacy of the disease, which, nevertheless, at length completely yielded.

In the subject of the *ninth* case, bleeding twice repeated and cupping were unable to arrest the progress of pneumonia of the severest kind. Tartarised antimony, carried to the dose of eight grains only, promptly fulfilled the indication, and cured the disease.

The *tenth* case presents this particularity, that when the tartar emetic had been used after bleeding they had again recourse to the operation; but the condition of the patient becoming worse, the tartarised antimony was again administered and carried as high as eighteen grains—a dose much greater than that given the first time. This was completely successful.

In the *eleventh* case, blood-letting was not practised, on account of a deformity of the arm which rendered the operation impracticable. The tartar emetic had the undivided honour of a speedy cure.

Lastly: the subjects of the *thirteenth* and *fourteenth* cases, which proved fatal, were in unfortunate conditions, which may account for the want of success of the tartar emetic. The first of the patients had been worn out by grief, and his pulmonary organs had been each year enfeebled and deteriorated by catarrhal affections. In the second, the pneumonia was evidently of long standing.

If we compare these facts with those related by the Italian authors on the same subject, it will be seen that I have only used moderate doses of tartar emetic (six, eight, ten, and twelve, seldom fifteen, eighteen, and twenty grains); I have considered it proper, moreover, to stop whenever the resolution made rapid progress, leaving to nature the power of seconding the medication which I employed. I have been far from repenting that I had followed this plan; and success has satisfied me that, in this case, as in many others,

nature ought never to be overwhelmed by succours of which she stands in no need.

When the disease appeared about to cease suddenly, the use of the emetic tartar was as suddenly stopped. On the other hand, when the resolution proceeded slowly, I concluded the treatment by decreasing doses. I have never exceeded twenty grains as the limit of the increasing dose. Often I added small doses of opium to the tartarised antimony to prevent nausea and vomiting—which sometimes greatly fatigue the patient—and to accelerate the *tolerance*. The antimonial or stibiated mixture was commonly composed of five ounces of the infusion of orange leaves sweetened, with or without the addition of half an ounce of the syrup of poppies; to be taken by spoonfuls every hour, or at lesser intervals, when the disease was very severe.

ACTION OF THE TARTARISED ANTIMONY IN A HIGH DOSE IN THE PHLEGMASIÆ.

Laënnec thought that emetic tartar in a high dose acted as an excitant on the animal economy, and the absorbent system in particular. Without denying to this heroic remedy the faculty of expediting interstitial absorption, and in this way even of resolving pneumonia, we think we are justified in attributing to it, besides, an action on the secretory organs and the sudoriferous exhalants. But whilst it drives outwards the excrementitious fluids that are separated from the blood, it retards, in a marked manner, the progress of that fluid in its vessels.¹ We have often seen the pulse diminished 10, 15, and 20 beats in the minute in the space of twenty-four hours, and if afterwards, owing to the progress of the disease, we were compelled to employ another agent, the pulse immediately became quicker.

When the tolerance is established—in other words, when there is no evacuation from the administration of the tartar emetic in a large dose, can we admit that the medicine is absorbed and carried into the circulation, where it may stimulate the secretory organs, and, at the same time, diminish the quantity of blood? Can we, in short, explain, in this way, the resolution of pneumonia? The question, thus put, presents an interesting problem of therapeutics for solution. When the tartarised antimony is not followed by tolerance on the part of the diseased organs, it acts as a derivative, facilitates and augments the biliary and even the urinary secretion, and produces sweating, &c. Its effects then resemble those of the

¹ It is not easy to understand how a remedy can at the same time retard the flow of blood and drive out the excrementitious fluids. The author's opinions are, however, his own; many of his theoretical considerations are more strange perhaps than strong.—*R. D.*

same agent given in a small dose, with which Bordeu, the father, and Serane, of Montpellier, perfectly cured inflammations of the chest, if we are to credit Th. Bordeu. As regards evacuations, those from the intestines are infinitely more frequent than vomiting; but neither the one nor the other is always an obstacle to the cure of these diseases, although frequently they should be regarded as incidents that contraindicate the use of the tartarised antimony in pneumonia and rheumatism. These are especially the cases in which the first dose of the medicine produces no salutary effect.

The local action of the tartarised antimony is exerted more particularly on the mouth, the tongue, the fauces, and the pharynx. On these parts we observe false membranes, pustules, &c.; but such alterations are, it must be admitted, somewhat uncommon.

The œsophagus never participates in the lesions caused by the emetic tartar, and they are more common in the intestinal canal than in the stomach.

The lower part of the small intestine and the beginning of the large, are the parts of the digestive tube which exhibit themselves more sensible to the action of the medicine in a high dose.

The lesions, which may, with most probability, be referred to the use of this agent—although they are often owing to some other unexplained cause—are injection and infiltration of the submucous tissue of the intestines, and softening of the mucous membrane. In the mouth, active inflammation, either pustular or ulcerous, is sometimes observed—a symptom which disappears rapidly after the discontinuance of the medicine. We have seen nothing similar in the stomach and intestines.¹

Of the phlegmasiæ, acute rheumatism and pneumonia are the diseases which may be treated with most success by the tartar emetic in a large dose.

The use of this agent should generally be preceded by blood-letting, and commonly we ought not to have recourse to the one unless the other is insufficient; excepting, however, in those cases in which bleeding is contraindicated, or impracticable for some reason, as happened to us once in the case of a rickety individual, who had no veins adapted for phlebotomy. The medical constitution of the season is also at times opposed to the loss of blood. The tartarised antimony is then a valuable agent. We may, likewise, have recourse to it at the very first, when the patient is exhausted by age or other causes, and when he appears too weak to bear the abstraction of blood, or obstinately refuses to submit to it. No one will deny that, in such cases, as in many others, it is advantageous to be able to cure promptly a serious disease, which

¹ All the facts and arguments, we think, tend to the conclusion that the contro-stimulant virtues of the tartarised antimony are dependent upon its revulsive properties; that this revulsion is produced in the lining membrane of the alimentary canal; that, when it is effected, the excited actions going on elsewhere become diminished, and more or less nervous and vascular concentration takes place towards the seat of the artificial revulsion. See the editor's *General Therapeutics*, page 433, Philadelphia, 1836.—*R. D.*

threatens existence, by a few grains of a powder. This agent, again, may be of great value, and of convenient employment, in the country, where the physician can seldom make repeated visits to his patients. It may be possible for him, by this plan, and with the assistance of a person of intelligence, to regulate the treatment of pneumonia or rheumatism, for several days, after having largely bled the patient if he has thought this advisable.

The treatment of pneumonia by tartar emetic, appears to us especially advantageous—every other thing being equal—in the case of old persons, whose blood should be spared, and whose digestive mucous membrane is less sensible than that of the adolescent and the adult.

The rational signs which presage success to the remedy in the cases of which we are speaking—the indications being accurately determined—are the *tolerance*, or absence of evacuation, observable after the second or third spoonful of the mixture; the retardation of the pulse in the twenty-four hours; a moderate degree of diaphoresis; and a feeling of well-doing on the part of the patient. The physical signs of improvement, seated in the affected organ, are not long in manifesting themselves afterwards.

As there are medical constitutions which do not admit of blood-letting, so are there some so eminently phlogistic that they interdict the use of the tartarised antimony. For instance, after having employed it so successfully in 1831, it became impossible for us to administer it advantageously at the end of 1832, and even at the commencement of 1833. It was not until the autumn of the last year that it appeared to us to be proper to revert to its use. Once it was administered in our wards, by an *élève* on duty, during the time of the epidemic cholera. The most unpleasant symptoms were induced, and the patient died of cholera morbus, not a symptom of which existed at the time when the tartarised antimony was administered.

TUBERCLES.

TUBERCLE OF THE SPINAL MARROW.

A woman, twenty-three years old, who said she had never been sick, and whose catamenia had been suppressed for four months after her accouchement, was admitted into the Hospital Cochin, on the 18th of July, 1832, for gastric irritation. During her convalescence, she complained of pain and weakness in the legs, to which, at first, but little attention was paid, but subsequently, on a careful examination, it was discovered that the left leg was weaker than the right, and that its motions were more difficult, and its sensibility less. There was, moreover, a fixed pain in the left side, which extended from the origin of the sciatic nerve

to the extremity of the toes. The patient experienced, besides, in both the lower limbs, formication and sensation of cold.

Three blisters were applied in succession on the lumbar region, but, notwithstanding, the right leg became affected like the left; the movements became more difficult; the sensibility, which had suddenly increased, became less; and a sensation of cold was frequently experienced, with constant feeling of numbness. Four moxas were now applied, two opposite the sacro-vertebral articulation, and two opposite the second lumbar vertebra. The disease seemed to remain for some time stationary, and no fresh symptoms were observed, except an acute and deep-seated pain, and a sensation of dragging or tearing in the lumbar region.

Towards the middle of August, fever, sweating, and pain in the abdomen supervened, with augmentation of the lesions of the lower extremities. Four moxas were applied to the sides of the vertebral column, which did not allay the pain in the limbs, or the feeling of laceration of which we have spoken; the sensibility, which had been enfeebled, became exalted; the toes were retracted, and were the seat of uncomfortable lancinating pains; the evacuations were involuntary, &c. &c.

Some sympathetic phenomena subsequently arose, which were dependent upon the brain and stomach. Pains in the chest, cough, the crepitant *râle* or rattle, &c., soon announced that the lungs were not sound. The locomotive power of the lower extremities was not wholly abolished. They were kept constantly flexed, but the patient was able to extend them; they were the seat of involuntary contractions, and, at times, their sensibility was so acute that the friction of the bed-clothes became insupportable. Diarrhœa, united with increase of the febrile condition, aggravated her condition still more. She now quitted the Hospital Cochin, and died a few days afterwards at the Hospital Necker, with the united symptoms of pulmonary phthisis and disease of the spinal marrow.

On laying open the spine, the outer envelope of the spinal marrow was found covered with an exudation of blood, chiefly at the upper part; but this congestion did not exist internally and in the medullary portion. We were struck with the tumefaction presented by the spinal marrow at its lower portion and at the origin of the *cauda equina*. At this part there was a tubercle of the size of a small walnut, of a yellowish colour, adherent, on the left side, to the medullary substance, and only contiguous to it on the right side. The texture of the tubercle was firm and granular, and, at the centre, there was a slightly concave point, which appeared to be the nucleus of the organic production.

The other cavities were not opened; but, as pectoriloquism evidently existed during life, there must have been one or more tuberculous excavations in the chest.

TUBERCLES IN THE CEREBELLUM AND TUBER ANNULARE.

A child, aged eleven years, very lymphatic, and of scrofulous aspect, had been in good health until the month of February,

1833. It appeared from the account of the parents, that, at this time, she had some affection of the brain, and during convalescence ascites supervened, for the treatment of which the child was sent from Saint Flour to Paris in the month of August.

The abdominal effusion was at that time accompanied by œdema of the extremities and general infiltration. After paracentesis, compression of the abdomen was tried unsuccessfully on four different occasions. Some cathartics were also administered, and diuretics, which were borne badly, and excited diarrhœa, so that they were obliged to be discontinued. The child being intractable, and inattentive to regimen, was left to itself for some weeks. The abdomen subsided a little under the diarrhœa, which continued. About the end of October she suffered under headache in the occipital region, strabismus, imperfection of sight, great difficulty in speech, slight deviation of the commissure of the lips of the left side, &c. On this supervened a complete state of hemiplegia of the right side, with loss of sensation. Percussion, moreover, gave a dull sound in the region of the heart, and he suffered from cough, mucous *râle*, and diarrhœa. He was in this state when he was brought to the *Hôpital des Enfants Malades* on the 1st of December. His situation became progressively worse, and he died on the 6th of January, 1834.

On opening the body, a slight serous effusion was observed in the cellular tissue under the arachnoid; each of the lateral lobes of the cerebellum contained a crude tubercle of the size of a pea. In the middle lobe there was another of the size of a walnut; and in the mesocephalon a fourth, of the size of a large chestnut; a fifth was found in the peduncle of the cerebellum of the right side; and a sixth in the anterior and superior part of the fourth ventricle. All these tubercles were in a crude state.

The left lung contained only one crude tubercle, but it, as well as the right, was studded with miliary granulations. The bronchial glands were tuberculous; the cavity of the peritoneum contained only about a glassful of turbid fluid; there were numerous ulcerations at the termination of the small intestine, and in the large. The left kidney was transformed into a cyst full of urine, and it was completely atrophied. A calculus was impacted in the ureter, which prevented the discharge of the urine. The ureter had acquired the size of the small intestine, and a tuberculous ulceration occupied the posterior paries of the bladder.

To these two cases, we may add an extract from the report of a third, made at the *Hôpital des Enfants*, and inserted in the *Gazette des Hôpitaux*, of the 3d of June, 1834.

TUBERCLE IN THE RIGHT PEDUNCLE OF THE BRAIN.

A child, three years and a half old, who had every appearance of a good constitution, became suddenly dull and apathetic; soon afterwards vomiting occurred, with falling down of the eyelid, and distortion of the mouth, pain in the head at intervals, numbness in

the limbs of the left side, and strabismus in the eye of the same side. At the end of three weeks, he was unable to walk; almost constant somnolency; no delirium or convulsive movements.

He was received into the hospital on the 6th of May, where he remained until he died on the 28th of the same month. In the interval there was a gradual aggravation of the symptoms, and many others of an accessory character, which resisted the most energetic measures.

On opening the body, an ounce of limpid fluid was found in the ventricles of the brain, and a tubercle, of the size of a walnut, in the right peduncle. In the centre of this tubercle was a small excavation filled with a greenish coloured pus; the parietes of the excavation, which enclosed this organic production, did not appear peculiar or morbid. The chest contained numerous granulations, and there were miliary tubercles in the lungs and in the cellular tissue beneath the pleura; the bronchial ganglions were almost all tuberculous, and the same change was noticed in some of those of the mesentery. The termination of the small intestine, and different points of the colon, had *ecchymosed* prominences, doubtless the germs of tubercular ulceration. Towards the end of the intestinal tube, the mucous membrane was softened.

In their developiment, as respects the spinal marrow, tubercles follow the same laws as different congestions which most commonly affect the superior or cervical portion of that medullary cord. It is always in the vicinity of the encephalon, as M. Olivier, of Angers (*Traité des Maladies de la Moëlle épinière*), has remarked, that these organic productions are met with. He cites but one case in which the disease was seated in the lumbar region. The one we have detailed is more remarkable in this respect even, as it occupied the lower extremity of the medullary cord. The tubercle, otherwise of a unique character, was of considerable size, when compared with the majority of those met with in the different parts of the nervous system; it was purely and simply adherent to the nervous tissue, without the latter being at all changed; was devoid of cyst, and had a small cavity in its centre. The symptoms, ascribable to the compression exerted by this organic degeneration, had their seat almost exclusively in the lower limbs. It is very rare, perhaps unexampled, for organs such as the brain and spinal marrow to be attacked with tubercles, without their existing, at the same time, in several other apparatuses; thus, the subject of the case that engages us was phthisical, and there was reason to believe, from what we observed, that other organs besides the lungs were tuberculous, as was the fact in two cases of which we have yet to speak.

These two, occurring in children of almost the same age, were considerably alike; the three great splanchnic cavities contained tubercles; and if we had examined the spinal marrow and the osseous system, it is presumable that we should have discovered others.

The distinctive characters of tubercles of the brain are very uncertain, and very difficult to be distinguished from other chronic

affections of the encephalon. Cephalalgia, strabismus, deviation of the lips and eyelids, different lesions of vision, stupor, debility and even paralysis of the limbs, with great alteration of the sensibility, were the most striking external signs in the two patients whose cases have been narrated. To these must be added general derangement of nutrition, absorption, and exhalation ; but it must be admitted that all these phenomena may exist in the advanced stages of many other chronic diseases of the encephalon and spinal marrow. It is consequently extremely difficult to discriminate the tuberculous affection of the brain during life, and it would be impossible, if we could, to adopt any efficacious system of treatment.

As respects the tuberculous diathesis also, of which Bayle has related examples, formerly quoted by us in the article *Tubercules* of the *Dictionnaire des Sciences Médicales*, these two facts are worthy of interest, and we are convinced that if life had been prolonged to the age, for instance, at which pulmonary consumption is developed, almost every system of the economy would have been attacked with tubercles.

PNEUMOTHORAX AND VOMICÆ OF THE LUNGS.

FIRST CASE.

Pulmonary Phthisis—Pneumothorax—Tinkling (*tintement*)—Metallic vibration—Pulmonary fistula—Caverns—Crude tubercles of the spinal marrow.

Augustus Dubois, aged 30 years, residing at Vaugirard, was admitted, for the first time, into the hospital, in May, 1831. For several years he had been affected with cough, and had night sweats, without, however, being compelled to leave off work. At length, enfeebled by this state of languor, which had been long masked by a vigorous constitution, he determined to seek our assistance, and more particularly on account of debility of the lower limbs, which compelled him to drag his legs in walking.

Pectoriloquy and gurgling (*gargouillement*) heard beneath both clavicles, and dulness chiefly in the corresponding part of the top of the right lung, were enough to establish the diagnosis, and to induce an unfavourable opinion. At the expiration of a few months, during which he was put upon a mucilaginous treatment, to which was added a seton in the nape of the neck, with the view of combating the lesion of the spinal marrow, which was suspected from the weakness of the lower limbs, he felt so much better that he left the hospital.

On the 12th of September following, Dubois re-entered the hospital. During his absence the disease of the chest had made manifest progress, but the state of the lower limbs was evidently improved. Cough was frequent ; expectoration purulent ;

profuse night sweats; diarrhœa; febrile exacerbation in the evening, with redness of the cheeks, &c. Gurgling and pectoriloquy were manifest at the points above mentioned.

Until about the 10th of October, nothing particular occurred, except that the labour in respiration went on augmenting; the tuberculous expectoration was copious as well as the sweating: the diarrhœa and hectic also continued. When the chest was now examined, it presented the following phenomena.

By auscultation, an amphoric or cavernous blowing sound (*bruit de souffle*) was heard, immediately followed by a long, extensive, and strong metallic resonance, which was perceptible over every part of the chest, but much more distinctly on the right than left side. No rattle, gurgling, or vesicular murmur, was heard in any part of this side of the chest. The remarkable noise in question had sometimes the clearness, and the quality of sound rendered by brass when struck; at others it resembled rather the sonorous murmur heard when we strike the air forcibly with a flexible switch. Percussion gave a very clear sound on the right side, towards the middle part, but it was dull beneath the clavicle. The patient was put upon a purely palliative treatment.

On the 12th, 13th, 14th and 15th of October, the dyspnœa went on increasing; the tinkling or sonorous noise of which we have spoken extended to some distance; the other phenomena became aggravated, and the patient died in the night of the 15th and 16th.

Necroscopy.—The two sides of the chest presented no difference as to external shape. A puncture made at the inferior and anterior part of the right side, between two of the false ribs, gave issue to a small quantity of air only. The sternum was turned up against the neck, and the ribs were fractured near the posterior extremity, to allow of the more careful examination of the diseased organs. The right lung was crowded towards the posterior mediastinum, and covered with a concrete purulent layer. At the anterior and outer part of the upper lobe, about two inches from the top, and one from the anterior margin, a circular fistulous orifice existed, surrounded by a yellowish membranous circle, which was probably a portion of the thickened pleura, adhering to the lung, and becoming progressively thinner towards the central perforation.

The fistulous orifice, of which we have spoken, was about five or six lines¹ in diameter. Behind, near the posterior margin of the lung, and in its superior lobe, on a level with the first fistula, was another, but of different shape and dimensions. Its longitudinal diameter was about six or seven lines; the transverse being only four or five.

The cavity of the pleura contained only a small quantity of transparent fluid—about two or three ounces. To take out the lung, it was necessary to destroy numerous adhesions which attached its top strongly to the ribs; the destruction of these exposed a large aperture, which a very slight effort would have converted

¹ Twelve lines to the inch.—*R. D.*

into a third fistula. The lungs, removed from the cavity, appeared reduced to two thirds of their ordinary size. The fistulous canals, of which we have spoken above, terminated in empty, sinuous caverns, communicating with each other, and occupying the whole of the upper lobe. These caverns were divided into different compartments by filaments (*brides*), which were constituted of vascular branches that had remained untouched in the midst of the enormous destruction of the pulmonary parenchyma. The inferior lobe of the lung was compressed; gorged with blood; and granulated (*chagriné*) externally, so as to have the appearance of the spleen. It contained some tubercles. The left lung had also a cavern, and was studded with a number of tubercles. The heart was very large; which is not common with the consumptive. The intestinal canal exhibited nothing particular, except that there was an evident contraction of the transverse colon.

The lower part of the lumbar portion of the spinal marrow presented beneath its ovoid expansion three or four yellowish and transparent tuberculous granulations, of the size of a large pea, and of a texture different from that of the medullary cord.

SECOND CASE.

Pulmonary phthisis—Pneumothorax—Metallic tinkling—Pulmonary fistula—Pleuritic effusion.

Nicholas Damotte, aged 19 years, painter of porcelain, of weak constitution, fair complexion and light hair, was admitted into the hospital on the 4th of October, 1832. He was in the last stage of phthisis, and exhausted by colliquative diarrhœa. Either in consequence of his debility, or his difficult disposition, he attended imperfectly to regimen. Pectoriloquy existed beneath the clavicle of the right side, with a clear and ringing sound of the same side of the chest, as well as feeble metallic tinkling. He was, moreover, subject to constant sense of suffocation, and had an imperious desire to be supported in the sitting posture, in order that he might respire. He died at the expiration of a few days, in inexpressible anguish, calling for death to relieve him. On the paper detailing the diagnosis is written—*phthisis pulmonalis: effusion into the right side and the pericardium; pulmonary fistula.*

Dissection twenty-four hours after death. The body was worn down to a skeleton: the thorax of the right side gave a clear sound over a large extent. At the first stroke of the scalpel into this part of the chest, a considerable quantity of air escaped. The right lung was reduced to perhaps the tenth part of its natural size, and crowded towards the upper part of the vertebral column under the clavicle and first rib: below, it was covered by false membranes, swimming on some ounces of a serous fluid effused into the lower part of the chest; at the upper and outer part of this shriveled lung, and opposite the second rib, an opening was perceived about a line in circumference, covered by grumous, whitish pus. Air having been blown forcibly into the trachea, bubbles were ob-

served issuing from the fistulous aperture, after having raised the circumscribed purulent layer in question. This opening communicated with a somewhat extensive cavity, the parietes of which were lined with a grayish pus. In this cavity, some of the bronchial tubes of considerable size terminated, the course of which was traced by means of a probe. The rest of the lung was tuberculous. That of the opposite side was so likewise, presenting here and there points of suppuration separated by pulmonary tissue, softened and filled with a grayish and bloody mucus.

In the pericardium there was a considerable quantity of a yellowish lemon-coloured serum.

The lower part of the small intestine was much diseased; the mucous membrane ulcerated, disorganised, and covered with pus, similar to that which oozed from the incisions made into the lung. The liver and the other abdominal viscera were sound, as well as the upper part of the digestive canal.

THIRD CASE.

Pulmonary phthisis—Metallic tinkling—Perfect pectoriloquy—Cavities in the upper lobes of the lungs—Slight effusion into the pericardium.

Louis Aubray, aged 49 years, farrier, of a lymphatic temperament, was received into the hospital on the 2d of January, 1833. He had experienced several attacks of inflammation in the chest, the first of which occurred four years before: had never completely recovered; suffering under cough, and occasionally under diarrhœa and night sweats. About two years before, he had been struck by the pole of a carriage on the chest. This contusion was followed by an abscess in the parietes of the thorax, with necrosis of the eighth sternal rib, and a fistulous aperture, which healed with difficulty. From the time of the healing of the fistula, the cough, dyspnœa, and night sweats, assumed fresh intensity; the diarrhœa became constant; the lower limbs œdematous; aphonia supervened, with watchfulness, &c. In this state he came to the hospital.

His complexion was livid; emaciation extreme; cheeks flushed; ribs prominent, and the spaces between them depressed. The limbs were œdematous; the dyspnœa considerable; and he was obliged to keep the sitting posture to avoid suffocation. The expectoration was purulent and of a greenish gray hue; the cough frequent and troublesome; the night sweats copious, &c. A drink was given him of a mucilaginous *tisane*, formed into an emulsion; and he was ordered a mucilaginous linctus, and derivative cataplasms to the feet.

On the 3d, the chest, when percussion was made, gave a clear sound over the whole of the upper part of the left side, and a dull sound at the lower part. The opposite was the case on the right side as respects percussion. On applying the stethoscope to the upper and anterior part of the left side, each time that the patient breathed, a metallic tinkling was heard, which greatly resembled the sound of a bellows blowing into a metallic vessel with a large

base. Behind and above, the respiration was cavernous; and at the lower part inaudible. Gurgling was heard beneath the right clavicle, and the respiration was bronchial in the rest of the upper lobe of the lung of that side. On a level with the inferior angle of the scapula of the left side, perfect pectoriloquy was heard; and in front, on the right side, it was less audible, but existed. The diagnosis was;—*Phthisis pulmonalis in the third stage, with an extensive cavity occupying the whole of the upper lobe of the left lung, and containing a small quantity of fluid: a small cavity at the top of the right lung.*

The palliative treatment was continued; small doses of extract of belladonna were prescribed in linctuses (*looks*) to allay the violence of the cough; pills of cynoglossum¹ were added to procure a little sleep, &c.

On the evening of the 3d, he was threatened with suffocation; but was relieved by the application of sinapisms to the feet.

On the 4th, aphonia; respiration frequent; stethoscopic signs less intense on account of the weakness of the voice.

On the 5th, he died, after a short and placid agony.

Necropsy twenty-four hours after death.—The chest neither contained air nor fluid: the left lung adhered on all sides to the pleura costalis to the level of the sixth rib: the adhesion was so close that it was impossible to separate the lung from it: almost all the upper lobe was occupied by a cavity containing a little fluid; this cavity was lined by a false membrane, of a whitish colour, and considerable thickness. The inferior lobe of the same lung contained a large quantity of yellowish, softened tubercles, separated from each other by firm and uncrepitating pulmonary tissue.

The upper lobe of the right lung also adhered to the pleura costalis. In its top was a cavity an inch in diameter, likewise lined by a false membrane, and containing a little pus. In the rest of this lobe of the lung there were masses of miliary tubercles. The two lobes—middle and inferior—were sound, and crepitating.

The pericardium contained very little fluid; the right cavities of the heart were distended by a considerable quantity of fluid blood.

FOURTH CASE.

Phthisis pulmonalis—Pneumothorax—Pleuritic effusion—Fluctuation on succussion—Metallic tinkling and vibration—Cessation of the tinkling for some days before death—Obliterated pulmonary fistula.

Denis Sintot, aged 27 years, joiner, of good constitution, and born of healthy parents, who are still living, had committed many

¹ The *cynoglossum officinale* is not introduced into the British or American pharmacopœias, but it is in most of the pharmacopœias of continental Europe. It has been esteemed narcotic, but is probably inert. The pills of cynoglossum, however, which are officinal in many places, owe their virtue to the true narcotics combined with the cynoglossum. The ingredients in the officinal formula are the root of the cynoglossum, hyoscyamus seed, purified opium, myrrh, obibanum, saffron, and syrup of opium.—*R. D.*

excesses in drinking without any evil consequences for a long time, excepting slight cough occurring at long intervals.

In the month of December, 1832, he perspired freely from hard labour, and became cool without taking due precautions. From this time the cough became violent, dry, and constant: he did not, however, abandon his accustomed wine and brandy.

The cough gradually increased; the respiration became distressing, and he was obliged twice to enter the Hôtel-Dieu for treatment. Some time after he last left the hospital, being unable to attend to his work without distress, he was received into the house of a relation, who carefully attended to him.

On the 18th of December, 1833, five days after this, being on his knees in the bed dressing, he suddenly felt considerable oppression, as if, he said, the chest were squeezed in a vice. This feeling gradually diminished, after the application of sinapisms to the feet and of leeches to the anus;¹ but the respiration continued panting, and neither sleep nor appetite returned. In this condition Sintot entered the Hospital Necker on the 21st of December. The oppression was considerable, the voice interrupted, and metallic tinkling and fluctuation (*flot hippocratique*) could be detected by succussion. But—the patient being of an unmanageable temper—a complete examination could not be made until the first of January.

He generally lay on his back; respiration was difficult, and accomplished thirty-five times in the minute; pulse 130; expectoration copious, frothy, and containing some yellowish, isolated, and roundish sputa; cough not troublesome; copious night sweats on the head and chest. On listening to the right side, which was very sonorous, a sort of resonant metallic vibration, similar to the sound made on blowing into an empty decanter, was heard at each inspiration, and from time to time a very distinct metallic tinkling, with simple resonance after the pronunciation of each word. The respiration was tolerably audible behind; but not at all before. The left side was healthy. When he moved the left arm, or was shaken, a manifest fluctuation was heard even at the distance of some steps from the bed. It resembled the sound made by shaking a small quantity of water in a large vessel. He slept; the evacuations were natural, and the urine scanty; but there was neither thirst nor appetite.

From the 2d to the 20th, the metallic tinkling and the amphoric vibration of which we have spoken presented much variation; but the general state of the patient changed very little. He yielded with a bad grace to the slightest examination, and frequently refused to answer our questions. The treatment was purely palliative.

From the 20th to the 25th, he lay constantly on his right side; voice veiled and very weak; right leg œdematous; neither the

¹ This is a common method of revulsive bleeding employed by the French. See the editor's General Therapeutics, page 360, Philadelphia, 1836.—R. D.

metallic tinkling nor the fluctuation audible; but the sonorous and resonant vibration was heard after coughing, expectoration, and pronouncing each syllable.

From the 25th of January to the 5th of February, he rose daily and walked a little, and he could lie down on the sound side, but in other respects there was nothing new in his condition.

From the 5th to the 10th, the difficulty of breathing sensibly augmented. Face pale, puffed; skin bathed in sweat; the hand and leg of the right side infiltrated and tumefied; respirations thirty-five in the minute; pulse 126; voice almost extinct, and interrupted.

On the 13th, pulse 140; respirations fifty-six; cough very troublesome.

On the 15th, in the night, he asked to be turned upon his right side, and died about midnight, without agony, having preserved his intellect until the last moment of life.

Necroscopy thirty-seven hours after death.—Considerable emaciation; œdema of the limbs of the right side, especially at their extremities; enlargement of the right side of the chest; separation of the ribs; circumscribed sonorousness around the right breast; a puncture made into this part gave exit to a gaseous fluid, which issued with a hissing noise. On opening the chest in the ordinary manner, but cautiously, a transparent fluid escaped, which was received into a pail. The right cavity of the pleura was very large, and extended into the opposite side. It was full of serous fluid, the total quantity of which might be estimated at four or five quarts. It was estimated that when the patient was in a sitting posture, the level of the fluid might be at the height of the second or third rib. Every part of this cavity was lined by a white layer of almost cartilaginous consistence and more than a line thick.

The right lung was pressed, and flattened against the vertebral column; being forcibly retained in this position by the false membrane, which entirely covered it. It was adherent to the internal surface of the ribs, by filaments doubtless resulting from a former pleurisy; adhesions which the slow and gradual compression of the fluid had elongated by pressing the lung backward.

The lung, inflated by the trachea, might be filled as far as the false membrane permitted, but the air nowhere escaped. To discover, therefore, the fistulous passage which had existed during life, the adventitious membrane was dissected off with great care, after having taken out the lung. Opposite a filamentous attachment, corresponding to the fifth rib, a small cavity was discovered of the size of a hazelnut, covered immediately by the membranous expansion which had been detached from the pulmonary tissue. A little further to the outside, a second pseudo-membranous layer was observed, plaited, of a round shape, about an inch broad, and slightly depressed at the centre. It formed the anterior paries of a second empty cavity, which could contain a walnut. This cavity, near its base, communicated with a bronchus a line and a half in

diameter. The first cavity neither communicated with the latter nor with the bronchi. The surrounding pulmonary tissue was healthy, but contracted by the compression: at its top, at the depth of four lines, there was an empty cavity which could contain a hen's egg. There were, here and there, also, miliary granulations.

The left lung likewise contained crude tubercles in its upper lobe. The greater part of the other two lobes was gorged with a frothy fluid of the colour of the sputa expectorated during life. The bronchi, trachea and larynx were red. Small ulcerations existed in the ventricles of the larynx.

The heart, which was of natural size, contained blackish coagula. The right ventricle was dilated, and its parietes were flaccid and extenuated.

The small intestine was studded with ulcerations, which affected only the mucous membrane.¹

FIFTH CASE.

Pleuro-pneumonia—Fall on the chest—Vomica—Consecutive phthisis—Pectoriloquy—Tinkling of a peculiar kind—Extensive cavity—Cicatrices manifest at the exterior of the lung.

Charles Stephen Hurset, gardener, aged fifty-four years, of strong constitution, accustomed, during his whole life, to hard work, had experienced in his youth several attacks of pleurisy or pneumonia, convalescence from which had always been long; and although he appeared to be perfectly cured, he had been very subject to catarrh since his last attack of thoracic inflammation. About five months ago, in cutting down a tree, he fell on his back, from a height of about twelve feet. Immediately after this severe fall he felt pain in the left side, with dyspnœa. These symptoms yielded without the employment of any means; but cough supervened, and, a month afterwards, the pain in the side returned, and he thought he could perceive that the left side was larger than the right. The pain in the side became pulsatory beneath the left nipple, and the cough was at the same time dry and frequent, with anorexia, fever, and sleeplessness. At length, after three days and nights of almost constant coughing and great oppression, he spat up *about six pints of puriform mucus, mixed with clotted, blackish blood*. After this the cough diminished, but did not cease, and there was almost always blood in the sputa. On the 23d of October, 1833, he entered the hospital. The sputa were then manifestly purulent; he had night sweats, and febrile exacerbations; the respiration was short and difficult; the left side was larger than the right, when accurately measured.

Percussion afforded a dull sound in almost every part of the chest; respiration *tubercular*; obscure pectoriloquy in the left side, &c. On applying the stethoscope carefully, some time after-

¹ This case was reported by M. Beau, *interne* at the hospital, and published by him more in detail in the *Archives de Médecine*, with reflections to be examined hereafter.

wards, a large cavity could be detected two inches below the left clavicle; in which—when the patient was made to cough, breathe, or speak—two distinct and variable sounds could be perceived. The one seemed as if produced by drops of water falling from some height; the other might be compared to the cricking of a child's rattle, or the clacking of a small valve.

These noises were detected a number of times by the pupils, and those who attended the clinics during the last month of the patient's existence.

On the 1st of January, 1834, he died, after having lingered between life and death for a fortnight, under the last symptoms of pulmonary consumption.

Necroscopy, twenty-four hours after death.—The body, of large stature, was reduced to a skeleton. When the chest was opened, the left lung was found crowded and compressed against the ribs by the heart, which was a little out of its common position; it was strongly adherent to the internal surface of the corresponding part of the thorax.

An incision being made into its anterior part, a large cavity was perceived occupying the centre and almost the whole of the lung—having for its parietes the external tissue of the organ reduced to the dimension of an inch, or an inch and a half, in different places. The interior of the cavity was very irregular, of a triangular shape, lined by a false membrane of cartilaginous texture, and half filled with purulent matter. Between this cavity and a division of the bronchi was a direct communication, discoverable by the probe. The pulmonary tissue, which formed a thick paries to the cavity, was hard, lardaceous, and resisted the knife. It enclosed, here and there, some crude softened tubercles.

The right lung adhered at its summit only to the bony case of the thorax: this adhesion was confounded with a whitish, organised, opaline patch, of the size of a dollar. Around this granulated patch, four distinct points, concave and puckered like the anus, were remarked, which presented the most evident characters of the pulmonary cicatrices described by Laënnec. Half an inch beneath, a small mass of cretaceous tubercles was discovered enveloped in a cyst. The rest of the lung was red and gorged with bloody mucus, which oozed out on the slightest incision. There were, also, miliary tubercles in some parts.

The heart exhibited nothing unusual.

The liver was large, and had passed into the fatty state.

No lesion in the intestinal canal.

SIXTH CASE.

General erysipelas—Inflammation of the right lung—Vomica—Cure.

A woman, aged 65 years, was admitted into the hospital about the end of April, 1834, with symptoms of hypertrophy of the heart.

In the course of May, she had symptoms of cerebral congestion, which required bleeding from the right arm, by which she was

relieved; but the small aperture made in bleeding became the commencement of general erysipelas, which developed itself in two days—at first on the right forearm, and afterwards extended, in the space of a few days, to the arm of the same side, to both sides, and to the neck, back, and abdomen.

She now fell into a state of stupor; the tongue became dry and brown, &c. Every thing foretold a fatal issue, when a decided improvement suddenly occurred in her apparently desperate condition. The erysipelas ceased; but, at the same time, without any previous indication of chest affection, she was taken with a troublesome cough, accompanied in a few days with such a copious purulent expectoration, that each morning the spitting vessel was filled with it. On percussing and listening to the chest, dulness was discovered, and slight pectoriloquy at the upper part of the right lung. Diarrhœa and fever supervened on the purulent expectoration, and it was believed that the patient would soon succumb.

Although advanced in age, she had never had any affection of the chest. It was questionable whether tubercles could have been developed and proceeded to suppuration without any precursory symptom; and the respiration, although slightly accelerated, was distinctly heard over every part of the chest, excepting where we have mentioned. Notwithstanding the rapid emaciation, it was difficult to believe that she was consumptive; and this doubt assumed fresh strength, when the expectoration was observed gradually diminishing, and the patient regaining some strength. The treatment was wholly expectant, consisting of mucilaginous drinks and gummy linctuses.

On the 7th of July, the cough and expectoration had ceased; there was no longer pectoriloquy or fever; she slept quietly through the night; took some food, and began to quit her bed. The convalescence was tedious, but on the 7th of August she was discharged perfectly cured.

It would be difficult not to admit that this woman had a *metastatic* inflammation—as it would formerly have been called—of the right lung, owing to the sudden disappearance of the erysipelas; and that there had been, in addition, suppuration of a portion of that lung, and discharge of the pus externally by expectoration. The vomica could not have proceeded from the breaking down of tubercles. This is, moreover, an example of what authors have called mutation or succession of disease—*morbi mutatio vel successio*, as Bordeu and the ingenious Lorry, author of two dissertations on this point of general pathology, would have expressed it.¹

To this case of vomica, remarkable in its origin and termination, we were desirous to add two others which fell under our observation; but, as their history is too incomplete to figure in this work, we shall substitute for them an extremely remarkable fact, extracted from the *Recueil périodique de la Société de Médecine*.²

¹ *De Morborum Mutationibus. De Morborum Successionibus.*

² Tom. viii. p. 288.

SEVENTH CASE.

Encysted vomicæ terminating by the expectoration of pus with a membranous envelope—Cure.

A man, aged 48 years, of a good constitution and bilious temperament, was attacked, at the commencement of the spring of the year 6, with pain at the lower lateral part of the left side of the chest; small, dry cough, and slight difficulty of breathing. In the course of the following summer and autumn the symptoms increased, but not very sensibly; in the commencement, however, of the winter of the year 7, they augmented with considerable rapidity, and were accompanied with weakness and emaciation.

On the 2d Pluviose, year 7, things were nearly in the same state. The voice was raucous; pulse febrile; cough less dry, and the sputa entirely mucous; the pain of the side extended to beneath the left breast. A blister over the seat of the pain, and a demulcent and slightly diaphoretic drink, constituted the treatment.

On the 12th, the expectoration was more copious and the sputa purulent. On the 29th, to smallness and softness of pulse were added fever, with evening exacerbations. His physician thought he could detect the characters of the first stage of phthisis pulmonalis; he gave an emetic, and recurred to the combined use of demulcents and *incisives*.¹

Towards the middle of Pluviose, the dyspnœa was so urgent that he was forced to remain in the sitting posture. He was somewhat relieved, however, by a more copious and easy expectoration of pus. Same treatment: an issue in the arm in place of the vesicatory.

During the months of Ventose, Germinal and Floreal following, the symptoms acquired more intensity and complication. The sputa were purulent; the cheeks red; the emaciation extreme, and the hair fell off in quantities.

On the 1st of Prairial, anxiety, syncope, and a sense of suffocation supervened, which appeared to put him in imminent danger, when he suddenly expectorated, after a fit of coughing, more than a pint of pus, with a membranous sac as broad as the hand. After this he was a little better, until the 28th of the same month. On that day he threw up another vomica, with a similar pouch or cyst; the pus, however, was not white like the first, but yellowish.

The feeling of suffocation persisting, after the evacuation of this second abscess, his physician, on the morning of the 29th, determined to administer an emetic mixture with ipecacuanha, with the intention of favouring the rupture and discharge of the other vomicæ, whose existence was suspected. The efforts at vomiting soon, indeed, occasioned the evacuation of two other small vomicæ

¹ This unphilosophical term was applied formerly to every agent that was supposed to possess the property of dividing or cutting the humours. We still hear, amongst the vulgar, of remedies to "cut the phlegm," &c. What agents M. Bricheteau includes under the term, it is impossible to say.

of the size of a large chestnut, the pus of which was perfectly white.

The symptoms continued; the eyes became hollow, and the opaque cornea of a pearly white; the strength was almost entirely exhausted; when suddenly, on the 29th Thermidor following, after having been nearly suffocated, he expectorated, after an obstinate attack of coughing, nearly a quart of purulent matter as white as milk. The discharge of the cyst of this fifth vomica took place promptly, and relieved his sufferings.

From this time, the purulent sputa, cough, difficulty of breathing, and fever, ceased. The restoration to health was complete on the 15th Nivose, year 8; that is, twenty-one months after the commencement of the disease, and four months and a half after the discharge of the last vomica.

In this case, published under the approbation of a learned society, there were in the lungs successive collections of pus, which were rejected by expectoration; moreover, a cyst was organised each time around the abscess, as if to preserve the rest of the lungs from the ravages of the pus. Nothing indicated, antecedently, that the patient was tuberculous, although his disease excited the suspicion.

When Laënnec published his *Researches on Pneumothorax*, and announced the existence of the singular sign of the metallic tinkling—a sign which is present whenever there is a communication between the bronchi and the cavity of the pleura containing an effusion of fluid—facts of this nature were sought for with eagerness; and as several were observed within short intervals, the belief was induced that the affection was frequent. This opinion does not appear to us well founded; and for nearly four years that we have officiated at the Hospital Necker—which might with propriety be called the hospital for phthisis—we have observed only three cases of pneumothorax. M. Louis, Physician to the Hospital la Pitié, and who has examined so many bodies, has published but two.¹ In the work of M. Andral we find three cases of this complex disease;² and two similar facts have been reported in the service of M. Rayer, at the Hospital Saint-Antoine, and inserted in the *Archives*!³ Yet the phenomena that result from the compression of the lung by the external air suddenly introduced into the cavity of the pleura, by means of a fistula, do not readily escape an attentive observer; there are, indeed, cases in which we may date the period when the effusion of air took place. Our fourth case is an incontrovertible proof of what we advance here. Nor is this the only point in which that case is remarkable: fluctuation was combined with metallic tinkling.

These two phenomena are explicable by their mutual concurrence; for it cannot be questioned that the transmission of the fluctuation is owing to the presence of air in the cavity of the pleura; so that whenever the sound of fluid is heard, we may feel satisfied that

¹ *Archives*, Juillet, 1823.

² *Tom. ii. p. 556.*

³ *Tom. xvii. p. 333.*

there is pneumothorax. The disappearance of the metallic tinkling some time before the death of the individual, is explained by the obliteration of the fistula, which must have been complete. Its existence was necessary for the production of the sound. It may be readily conceived that if the lungs had been less affected, or the effusion less considerable, the patient might have been cured. The case appears to me to be unique of its kind, and it was owing to it that the *élève interne* attached to my service (M. Beau), little satisfied with the theory of Laënnec,¹ determined to institute some experiments to explain the metallic tinkling—experiments which we afterwards repeated together, and the results of which were published in the “Archives.” With this view, he took a glass bottle, capable of containing four or five quarts, and half filled it with water, into which he plunged a tube of small diameter; an assistant blew gently into the tube, and bubbles of air arose in succession, and broke at the surface of the fluid; the explosion of each bubble communicating to the ear of the attentive observer a sound like that of the metallic tinkling heard every morning in the case above mentioned. We have repeated this experiment a number of times, and the noise produced by the breaking of the bubble of air has always appeared to us like that of the metallic tinkling. A simple conclusion easily results from these experiments: that when the metallic tinkling is heard in a patient affected with pneumothorax, the internal surface of the bronchial fistula must be lower than the level of the effused fluid; that the air rises in bubbles to the surface of the fluid by virtue of its less specific gravity; and that each bubble in bursting produces the vibration or tinkling termed metallic. M. Beau has paid especial attention in his work to prove that the majority of known facts are favourable to his theory. It would appear that anatomical researches have established that, in these cases, the internal orifice of the pulmonary fistula opens into the cavity of the pleura, beneath the level of the pleuritic effusion.

Another circumstance in favour of this theory is that it had struck an accurate observer, prematurely lost to science (M. Dance), who furnished a foundation for it by some experiments made on the dead body. The experiments of Dance are similar to ours: although the circumstances were not the same, the results are exactly alike.

What must have been the astonishment of M. Beau, a young physician just commencing his career, when the publication of the *Dictionnaire de Médecine*, apprised him that the explanation, which he had every reason to regard as his own, was two years old—a fact which admitted of no doubt, as M. Dance died in 1832! This coincidence of ideas in two individuals who were not acquainted with each other, is calculated to show the vanity and inutility of contests as to priority of mental conceptions.

¹ This author merely says that the metallic tinkling is owing to the tremor (*fremissement*) of the air at the surface of the fluid effused into the chest.

The metallic tinkling, as characterised by Laënnec, is a very extraordinary phenomenon, which is constantly observed in pneumothorax with pulmonary fistula or pleurobronchitis; and in patients who have cavities of a certain size in the lungs with a given quantity of fluid. But that illustrious observer and they who have followed him in the same career have not remarked, that the intensity of the tinkling augments in a ratio with the size of the fistulous orifice, the number of the fistulæ, the nature of the parietes of the cavities, &c.; and that, in the second place, there are cases in which, instead of the metallic tinkling, or rather conjointly with that sound, a kind of extensive and sonorous vibration is perceived, which seems to proceed from the abrupt introduction of a strong column of air into a metallic vessel of large dimensions. This sound does not resemble the amphoric murmur (*bourdonnement amphorique*), which some authors assert they have met with in pneumothorax, and which they have probably confounded with it. It has appeared to us to be produced by the size and multiplicity of the pleuro-bronchial fistulæ, by the arrangement of the cavities which communicate together, or are divided into several compartments, and by the cartilaginous nature of the parietes of the cavities. This, at least, is what we observed during life in the subjects of the first and fifth cases, in whom this phenomenon existed in a very distinct manner. We have given to this new sign the name of *metallic vibration*, until a more attentive examination shall enable us to assign it another denomination.

The puckered and distinct cicatrices that existed at the top of the right lung of the subject of the fifth case prove, indisputably, that he had been cured of partial tuberculous affections, or of very circumscribed abscesses of the lung, and that his existence might have been prolonged had he not been exposed to fresh causes of disease. This anatomical fact, by showing the resources of nature, explains how they who are tuberculous may, under proper management and hygienic attention, survive to a good old age. We may likewise deduce this information, that phthisis is not necessarily incurable, as Bayle and other pathological anatomists who look only to the cadaveric lesions have affirmed. Medicine and Hygiène united, have, therefore, a certain degree of power over this cruel malady, when they are aided by an intelligent and firm patient. But, in order that a cure shall be effected, a very small number only of the tubercles must have suppurated at once.

The cicatrices which result from such a fortunate termination are of two kinds; some that Laënnec inappropriately termed *fistulous*, which consist in cicatrization and the development of a semi-cartilaginous membrane in the interior of a small, shrunken cavity, are most commonly of a fistulous shape. The cicatrices of the second kind are complete, linear, and more dense than the pulmonary substance; they have a peculiar puckering (*froncement*), and are funnel-shaped externally—a pathological condition well described by Laënnec, and which those physicians who are not familiar with the study of the organic lesions of the viscera have

denied, because they have not studied them properly. The external puckered funnel, in some measure resembling the anus, is owing to the cicatrisation of the most superficial part of the ulcer, over which the pleura pulmonalis has become attached by forming strong adhesions. This funnel is continuous with the linear part of the cicatrix.

The pulmonary cicatrices lead us naturally to the vomicæ, of which, cases five, six and seven offer examples. One degenerated into phthisis; another was rapidly cured; and the third, also cured, was a most extraordinary case.

As this point of pathology has been the subject of numerous discussions, and, it appears to us, has not yet been sufficiently elucidated; and as many physicians, in imitation of Laënnec, ascribe to tubercles too absolute an agency in pulmonary affections, we shall indulge in some considerations, based on facts, which we hope at least may not be entirely devoid of interest.¹

It has been long believed that every collection of pus in the lungs proceeds from inflammation and suppuration of the parenchyma of that viscus; but experience, joined to necroscopic researches, has shown that abscesses of the pulmonary tissue are very rare, and that the morbid changes belonging to the different forms of pneumonia, seldom present conditions of suppuration to which this denomination could be applied. It is in other lesions, consequently, that the cause and source of vomicæ must be sought for.

Amongst the physicians who have treated of this point of doctrine, some—as Laënnec—have made the disease consist almost entirely in the breaking down of tubercles;² others have referred it exclusively to abscesses formed in the cavities of the pleura, and which appear to have destroyed the lung by suppuration foreign to that viscus. We think that there is exaggeration on both sides; that the celebrated Laënnec was mistaken in affirming that abscesses of the lungs are a hundred times less common than the suppuration of tubercles; and that it is evidently erroneous to suppose that vomicæ are always the consequence of suppuration of the pleura (*pleurésie suppurée*). It is more rational, more philosophical, indeed, to admit, as has been done by our excellent friend Patissier, in the article *Vomique* of the *Dictionnaire des Sciences Médicales*,³ that vomica is at times owing to abscess of the pulmonary parenchyma, which is less uncommon than is believed at the present day; at others, to purulent collections formed by the breaking down of tubercles; and, at others, to abscesses of the liver, which are discharged by the bronchi. He designates, also, by the same name, the purulent collection which proceeds from the suppuration of the pleura, and which constitutes empyema when the

¹ A celebrated professor of this capital (Paris) often asks ironically in his lectures, for any one to show him an abscess in the lung, and a case of chronic pneumonia.

² *Traité de l'Auscultation Médiate*, tom. i. p. 405.

³ Tom. lviii. p. 315.

pus is not rejected by expectoration, as happens in the variety of which we are treating. This expectoration is not, properly speaking, a vomica, inasmuch as the lung is only pressed upon, is sound, and foreign to the disease.

1. *Vomica formed by suppuration of the pulmonary parenchyma*.—We are not unaware that Bichat advanced the opinion that pus never collects into an abscess in pneumonia. We know, also, that Bayle observed a long time ago, with a good deal of foundation, that many authors have confounded encysted abscesses of the pleura with vomicæ, as they were formerly considered. But these considerations do not prevent us from thinking, with M. Patissier, that this pathological question, when more closely examined, leads to another solution than that adopted by those celebrated physicians.

An attentive perusal of the twentieth letter of Morgagni has but strengthened us in this opinion. M. Lallemand, professor at Montpellier, at his entrance on his medical career, published several cases of true abscesses of the lung,¹ which are of a character to demonstrate that the affection is more common than is imagined. The following is an extract from two of these cases.

A female, aged sixty-five years, affected with pneumonia, died on the twenty-second day of her disease. On opening the body, an extensive abscess was found in the upper part of the right lung. The sac which contained the pus was three or four inches in diameter in every direction; its anterior paries was separated from the pleura by the thickness of a few lines; the posterior paries was much thicker; the interior of the cavity was crossed by membranous filaments (*brides*), or small septa which circumscribed different sinuses (*clapiers*). These were formed of bronchial vessels or tubes which had withstood the ravages of the suppuration. In the interior of the abscess two small portions of lung were found floating, and attached to the rest of the organ by vascular and bronchial filaments only. The pulmonary parenchyma adjoining the abscess, was soft and easily lacerable; the remainder hepatised and infiltrated with pus. At the lower part of the same lung another abscess existed, smaller than the first, but, in other respects, similar to it. Not a single tubercle was perceptible in the lungs.

In the other case, which greatly resembled the first, the right lung was found, on dissection, soft and crepitant inferiorly; hard and compact superiorly; at the top, which was plaited, and exhibited fluctuation, there was an abscess which contained a glassful of white, opaque, homogeneous pus, similar to that of a phlegmon. The cavity was three inches in diameter in every direction; its parietes were formed above by the pleuræ united and thickened, the top of the lung being destroyed; below, the tissue of the lung was found hard and compact. The interior of the abscess was crossed by bronchial vessels and tubes of the size of a writing quill; and flakes of cellular tissue—the remains of the pulmonary paren-

¹ Bibliothèque Médicale, tom. lxxv.

chyma—floated in the midst of the pus. A layer of the same fluid was adherent to the whole surface of the cavity, which it lined internally.

2. *Vomica caused by the breaking down of tubercles.*—This is infinitely more common than the preceding. It proceeds from the suppuration of a number of tubercles, or rather from the purulent secretion which subsequently takes place at the surface of the encysted cavities that enclosed the tubercles. The consumptive frequently expectorate from these vomicæ after fits of coughing, and sometimes to the extent of several glassfuls of pus or purulent sputa. In certain cases, the quantity of pus is so much greater than the mass of tubercles, that a great part is doubtless the product of a secretion from the surface of the tuberculous excavations. Laënnec has clearly exhibited this in the work already cited, from which we obtain the following case:—A patient, after having had, for several months, dry cough, accompanied by dyspnœa, hectic fever, and other symptoms that led to the suspicion of the existence of pulmonary tubercles, expectorated at once, after a violent fit of coughing, nearly a glassful of puriform, opaque, and almost diffuent sputa. For about eight days, he passed, every twenty-four hours, about three pints of a similar matter. The expectoration afterwards gradually diminished, and at length totally ceased, as well as the symptoms which had preceded it, and the patient was discharged from the hospital perfectly cured.

3. *Vomica caused by suppuration in the cavity of the pleura.*—The matter of empyema, a disease which, as we have already said, is commonly foreign to the lung, and, on this account, not entitled to the name *vomica*, sometimes makes its way into the bronchi by means of a fistula or perforation into the lung, and is rejected by expectoration. Bayle first made known and described such cases. He himself died of chronic pleurisy which had suppurated, and been mistaken for phthisis. This kind of purulent collection making its way outwardly is infinitely less common than some authors have believed, who have affirmed that all extensive and sudden purulent expectorations belong to it. We possess few or no well described examples of it.¹

4. We cannot consider in the same point of view the *kind of vomica caused by an abscess of the liver which penetrates the lung*, because that organ always participates, more or less, in the suppuration. It sometimes happens that the pulmonary organ having contracted adhesions with the diaphragm, the pus, formed in the liver, destroys and perforates that muscular septum, and penetrates the chest, whence it is rejected by expectoration. Authors have published cases of this kind of translation of abscess of the liver. To those related by Stalpart Van der Wiel, Verduc, and

¹ In the course of the last winter, we saw a case of this kind, which was under the charge of Drs. Calhoun and George McClellan. The young gentleman, after having expectorated large quantities of pus, is now in a fair way of recovery.—*R. D.*

Raimond, we may add here an extract from two cases inserted by Hébréard in the *Mémoires de la Société Médicale d'Emulation*.¹

A man, aged twenty-eight, entered the infirmary of the prison of Bicêtre, on the twenty-fifth Germinal, year 10; he said he had received, eight days before, a blow with the fist on his right side, which had never ceased to pain him. On the ninth day from the accident, his countenance became yellow, and he had irregular chills, great heat in the evening, and sweating during the night. He was prescribed diluent drinks, and a decoction of *emetised*² tamarinds. From the tenth to the fifteenth day, the yellow tint extended to every part of the body; (same treatment.) On the twentieth day he experienced pain in the chest, cough, and night sweats. From the twentieth to the thirtieth day, the yellow tint diminished, but the pain in the chest augmented. On the thirty-seventh, expectoration of some bloody sputa; in the night, constant cough, insomnia; (a blister to the pained part of the chest.) On the fortieth, expectoration of very copious, brownish, puriform sputa, without any effort, which continued till the sixty-fourth day in terrific abundance—near two quarts a day. This expectoration was accompanied by dry heat of the skin, and obtuse pain in the right hypochondrium. He was not perfectly cured until the eighty-eighth day.

On the 14th of July, 1807, they brought to the infirmary an idiot, who complained of very acute pain in the region of the liver. He lay on his right side, and cried out whenever pressure was made on the hypochondrium of that side; (regulated diet, venesection, diluent drinks, cataplasms.) On the tenth day, irregular chills; cough, when the region of the liver was pressed from below upwards. On the twentieth day, the liver was prominent, the countenance much changed, and the emaciation augmenting as well as the debility: (a blister over the hepatic tumour.) On the twenty-fifth day, almost constant cough, with dyspnoea. On the thirty-sixth day, copious expectoration of a substance having the colour of lees of wine, which continued eight days; the hepatic tumour had subsided, and the pain was much less. On the forty-fifth day, the sputa were less copious, and had assumed a grayish hue. On the fifty-sixth day, the expectoration had ceased; and, on the sixty-third, he was cured, but had a relapse, in which the liver made a considerable projection. It was covered with emollient cataplasms; afterwards a blister was applied, and, ultimately, an incision was made into it, which gave issue to a pus similar to that which had been previously expectorated.

Although the two facts related by Hébréard required a last demonstration to establish their anatomical and fundamental character—we mean the dissection of the morbid parts—it appears difficult to raise serious doubts on this matter, especially as regards the second case, which terminated in an abscess of the liver opening externally. It must be admitted, however, that error is pos-

¹ VII^e année, page 354.

² See page 10.

sible in these cases, as is shown convincingly by a summary exposition of the following fact, reported only a few days ago at the Hospital Necker.

A woman, sixty years old, entered the hospital on the twenty-first of last August. She had been sick, it was said, for four months. The most simple examination was enough to show that she was attacked with violent pneumonia of the right side of the chest, and jaundice, accompanied by painful tension of the right hypochondrium; in short, the aggregate of the symptoms, which we shall dispense with relating here, as well as the general condition of the patient, indicated very serious disease. She was bled from the arm, but without any success. On the following day, the twenty-third, her condition being worse, and the pulse being extremely weak, it was determined to employ the tartar emetic in a large dose; (eight grains in a mixture.) On the twenty-fourth, she appeared to be better as regarded the pain of the chest, but the tension of the hypochondrium and the yellow hue of the skin were greater. She was now taken with a copious, clotted, yellowish expectoration, which half filled the spitting vessel. She had vomited but once after the emetic tartar, and the tolerance was promptly established. Twelve grains were now given through the day, which produced no vomiting, but only some alvine evacuations. On the twenty-fifth, nearly the same state; no improvement in the pneumonic symptoms; respiration bronchial, and blowing (*soufflante*) in every part of the diseased side. The expectoration is still striking as to colour and abundance; the right hypochondrium continues to be tumefied, and painful on pressure: (the tartarised antimony was discontinued.) On the twenty-sixth, the patient became much weaker; respiration was more difficult than the evening before; the spitting vessel was filled with expectorated matter of the colour of wine lees, or of the *sauce tomate*, exhaling a manifest fæcal smell. The abundance of this expectoration, its odour, the presence of jaundice, of intumescence and constant pain of the hypochondrium, made me believe that I had one of those hepatic abscesses which gain the lung by perforating the diaphragm. All medicine was suspended, owing to the desperate condition of the patient; and, on the following day, she died. On opening the body, we found pneumonia of the whole of the right lung, which was largely adherent to the diaphragm; the hepatisation was of a gray colour, and in a very advanced stage; the liver was sound; the intestines presented nothing particular.

Vomica may likewise owe its origin to a purulent collection formed in a dilated bronchus. The pus gradually collects in this accidental cavity, and is expelled at once when its presence becomes a sufficient cause of excitation to provoke a fit of coughing. This pus, according to M. Chomel,¹ is usually remarkably fetid.²

¹ Dictionnaire de Médecine, tom. xxi.

² In the spring of 1836, a case, apparently of this nature, fell under our charge in the Baltimore Infirmary. A man was affected with violent fits of

Vomica is not always, as we have just seen, and as our sixth case attests, the fatal termination of disease of the lung. On the contrary, it is, in certain cases, the result of a salutary effort of nature[?] In this way, according to Borden, the celebrated chemist Rouelle was freed from a serious affection of the lung, of which that distinguished physician had skilfully foreseen the termination. In these different cases, the cavity which contains the pus may fill up, cicatrise, or be reduced to a small capacity, of which pectoriloquy is the certain index.

Laënnec has observed more pathological cases of this nature than any other person, as is evinced by the different articles in his work on Mediate Auscultation.¹ Of all vomicæ, the most dangerous are those that proceed from inflammation of the pulmonary parenchyma, because they induce the destruction of a great part of the organ, and give rise, much more than the others, to slow fever, and to symptoms inseparable from the absorption of pus.

INFLUENCE OF HYPERTROPHY OF THE HEART ON THE BRAIN AND LUNGS.

Physiological and pathological considerations on the influence of the heart, and of hypertrophy of the ventricles of that viscus on the functions and diseases of the brain and lungs.

SECTION I.

Of the influence of the heart and arterial circulation on the brain, and on the cerebral functions—On the connection between hypertrophy of the left ventricle and different diseases of the brain, such as cerebral congestions, apoplexy, softening of the brain, mania, &c.

Vitalism, so philosophical in the school of Stahl; so subtle and metaphysical in the school of Montpellier; so seducing in the writings of Bichat; so skeptical in the school of Pinel,—has had the unfortunate result of causing every physical and mechanical theory to be discredited. There are yet vitalists, and especially those of

coughing, resembling hooping-cough, accompanied by a most profuse secretion of muco-purulent matter, so intolerably fetid that it could scarcely be examined. The excessive fetor prevented even the due use of auscultation, the breath being loaded with the odorous emanations; yet so far as it, as well as percussion, was employed, there was no indication of solidification or abscess.

The case was treated by revulsives and narcotics, and the man recovered without any symptoms of pulmonary tubercles.

A similar case has been recently described in the American Medical Intelligencer (July 1, 1837), by Dr. S. A. Cook, of Buskirk's Bridge, N. Y.—*R. D.*

¹ Page 409, et seq.; 585 to 638.

the Parisian school, who repel, with blind obstinacy, every approximation between the action of our organs and that of physical agents, properly so called. For a long time, it is true, such approximations were much abused: but now, as often happens, we have run into the opposite excess by proscribing them. We are not afraid to say, that in acting thus we seem to protest against that precept of eternal truth—that medicine should incessantly appeal to all the other sciences for assistance.

The partisans of observing or Hippocratic medicine may also be properly reproached with having committed the same fault, by repudiating every kind of connection between the action of morbid and mechanical causes. Organic medicine itself, devoted as it is to the study of the physical lesions of organs, has nevertheless greatly neglected the most material causes of disease. The same aversion has been manifest in respect to certain therapeutical agents, which act by their physical properties, such as resistance, gravity, elasticity, attraction, compression, &c. Many of them have even been in some measure proscribed from the *Materia Medica*.

Yet it cannot be denied that physical and mechanical causes constitute the most positive domain of etiology, and that their study is best adapted for directing the physician in the rigorous explanations which he gives of disease. We may consequently assert with conviction, and as a fact of great utility at the present day, that physical or mechanical agents, whether regarded as occasional causes of disease or as methods of treatment, deserve to be classed amongst those objects that are most capable of satisfying the mind of the enlightened physician, who is desirous of tracing the derangements which he observes in disease to their true source.

Let it be understood that we are not now speaking of comparing the organism to a more or less complex machine; of rigorously assimilating the laws of the equilibrium and circulation of fluids to those of statics and hydraulics; of calculating, as did the Iatromechanicians, the exact influence of the angles and curvatures of vessels, and of gravity and density of fluids. We speak only of the importance of bearing in mind the obstacles and resistance experienced by the blood, bile, urine, the serous and lymphatic fluids, &c., in their course or excretion; of appreciating the effects of the compression caused by increase in the size of organs, and of tumours; those of the impulse communicated to the blood by a vigorous, hypertrophied heart; the results of physical derangements, of obstacles of every kind, of ruptures proceeding from the obliteration of excretory ducts, of the stagnation of excrementitious matters, of their accumulation, of the congestion of fluids, of unequal repletion of the sanguineous and lymphatic vessels, &c.

In shaking off the yoke of the vitalists—one of the first, perhaps, which I can recollect—I endeavoured to bring back attention to the effect of physical and mechanical causes in disease, by pointing out and determining the obstacles to the expulsion of air, caused by obliterations of the intestinal tube in the primary or secondary diseases

called tympanitis;¹ by explaining the mechanism of hepatisation of the lungs;² of hemorrhage by compression and obliteration of vessels; and disorganisation of the viscera;³ by demonstrating the influence which the force or hypertrophy of the left ventricle of the heart exerts on the functions of the brain, and on the production of cerebral congestions, apoplexies, &c.⁴ The second edition of this memoir I shall reproduce here; with such changes as the works which have been since published on the same subject, and the fresh researches which I have made, may require. To it I shall add a second unpublished memoir, in which I shall examine, *first*, the disorder caused by increased size of the heart and its tumultuous movements; *secondly*, the influences which the increased action of the right ventricle exerts on the circulation in the lungs, on respiration, and in the production of hæmoptysis; and, *thirdly*, the obstacle which the different diseases of the lungs induce in the course of the blood of the pulmonary artery; its reflux, and the aneurismal dilatations that may result from it.

The heart, the chief agent of the circulation, is placed, as it were, in the centre of the body, to transmit by vessels, of which it seems to be the origin, the blood to convey excitation and life to every part of the economy. Might we be permitted a comparison when speaking of the functions of the organism, we might assimilate the influence exerted by this important viscus to that of a fruitful stream, spreading fecundity every where by means of a thousand channels. We may add, that as those places which are nearest the centre of irrigation acquire a greater and more productive activity, so do the organs nearest the heart receive from its impulse a more energetic vital action, and one more proportioned to the influence of their respective functions. Thus, the encephalic organ—which, as the seat of the senses and of the general percipient sensibility, exerts the greatest influence on organisation, and requires a strong and permanent excitation—receives a large quantity of oxygenised blood by the numerous arterial vessels distributed to its substance, and the blood reaches it after a short course from the centre of impulsion. Does it not appear to him who reflects on this organic arrangement, that nature has placed not far from the centre of circulation, the organs that are most important to the maintenance of life, as the liver, lungs, brain, and stomach; and that she has provided them with numerous vessels, in order that they may be largely bathed with recently oxygenised blood, which is indispensable to the accomplishment of their functions?

In general, the nearer the brain is to the heart, the more its activity is manifested by acts of a superior degree of intelligence [?] It has been long said that a short neck, and a large head at a short

¹ Bibliothèque Médicale. Tom. li. 214; 1817. Dict. des Sciences Médicales, Art. *Tympanite*.

² Journal Complet des Sciences Médicales, ix. 106; 1821.

³ Idem. xxi. 175; 1824.

⁴ Idem. iv. 17; 1819.

distance from the chest, indicate a fertile mind and expanded intellect. It is certain that a great number of intellectual men, who by their organisation are adapted for profound meditations, and the conceptions of genius, present this peculiarity of structure; and although its influence on the intellectual condition has been denied, owing to numerous exceptions, we believe with many physiologists, that in several cases this influence is real and worthy of remark.

During intellectual labour, the blood, which commonly flows copiously to the encephalon, is sent thither with violence in those whose hearts are provided with strong parietes; the face becomes tumid and florid; the eyes red, prominent, and injected. This is the moment of inspiration, and the writer may then exclaim with truth, *Ecce Deus!*

M. Richerand knew a literary character, who, in the heat of composition, presented symptoms of a kind of cerebral fever: the face was red and animated; the eyes sparkling; the carotids beat with force; the jugular veins were turgid; and every thing indicated that the blood was carried to the brain in quantity proportionate to its degree of excitement. It was only, indeed, in this kind of *erection* of the cerebral organ that his ideas flowed without effort, and that his fecund imagination traced at pleasure animated and picturesque representations.¹ The same author speaks also of a young man, endowed with a sanguine temperament, and subject to inflammatory fever, which always terminated by copious nasal hemorrhages. During the paroxysms of this disease there was a remarkable augmentation of the strength of his intellect and the activity of his imagination. I have observed this in myself during an indisposition accompanied by manifest cerebral congestion: every thing at the time appeared easy to me, and in this state of cerebral excitement I wrote a long letter, which I have since perused with astonishment. Similar effects result when we take a strong dose of coffee to enable us to labour during the night. Doctor Olivera, a Spanish physician, established at Paris, knew a scholar possessed of an astonishing memory, who, after having vainly attempted to learn his lessons both in the erect and horizontal posture, ultimately succeeded by placing himself with his head downwards. The celebrated musician Grétry, after having elevated his imagination, and heated his brain by reading twenty times over the words which he had to depict by sonnets, afforded symptoms of congestion of the brain for three weeks or a month, during which he composed one of his operas.²

According to physiologists, intellectual labour is more easy in the horizontal posture, in which the blood appears to have less resistance to overcome to reach the brain; and every one knows

¹ *Elémens de Physiologie*, ii. 121.

² For some interesting observations connected with this subject, see "An Examination of Phrenology," &c., by Dr. Thomas Sewall, of Washington city, page 55. Washington, 1837.—*R. D.*

that on awaking, which usually takes place in this position, the ideas present themselves in crowds to the pre-occupied imagination. There are persons who suddenly quit their beds to make a note of fugitive thoughts, of which the memory would be but a faithless depositary. I may add, that there have been poets and literary characters who almost always laboured in the horizontal posture, from its being, according to their observation, more favourable to the intellectual process.

From an inverse relation between the heart and the brain, opposite phenomena generally result; which again is in favour of the influence exerted by the impulsion of the blood on the encephalic functions. Tall individuals, with long necks, and in whom, consequently, the brain is at a distance from the heart, do not commonly seem to be endowed with superior reason, or adorned by a brilliant mind; they are usually slow, phlegmatic, and for the most part of very limited moral activity and capacity.

If from man we descend to animals, we see, amongst the mammalia, the giraffe, the deer, and the gazelle, and, amongst birds, the goose, the heron, and the crane, with very long necks, supporting small heads, all of which have very limited intellect. La Fontaine has been extremely careful not to make them play any important part, or to ascribe to them any intellectual language, in his Fables, which exhibit a spirit of observation equally profound and philosophical. It is known, moreover, that those animals present to us the emblem of stupidity. Anatomy demonstrates that the size of the heart is small, and the action of that viscus very feeble. On the contrary, the elephant, whose head is large and nearer the centre of the circulation, is distinguished for its admirable instinct; the cat, so tractable and hypocritical; the ape, so mimical, the bear, so intelligent, and the fox, which at the court of the lion played the part of an adroit politician and an astute courtier,—exhibit nearly the same ratio between the heart and the brain. The like observation may be made of the dog, courageous and constant, the emblem of faithful friendship, resisting even ingratitude; and of the beaver, the industrious architect. This important circumstance had not escaped Legallois, who has written ingenious considerations on the heart and its functions. Those animals, said that distinguished physiologist—too soon lost to science—are the most courageous (and he might have added, the most intelligent) whose hearts are the strongest. The organ is stronger, for example, in the dog and cat than in the rabbit and the Guinea pig; it has little strength in the cold blooded animal, and especially in fishes. Bichat had also an idea of this point of physiology; he says expressly, that animals with long necks, and which, on that account have the heart more remote from the brain, so that it cannot so readily agitate that organ, have the most limited intellect, and the narrowest cerebral sphere; and that, on the other hand, a very short neck, and proximity between the head and brain, commonly coincide with energy of the latter; and, he adds, that men whose heads are very far from their shoulders, when compared with

those where the distance is less, sometimes present the same phenomenon.¹

Every thing, therefore, concurs to prove that this connection between the action of the heart and that of the brain, which has been established by observation as an incontestable fact, is constantly kept up by the contact of arterial blood, which is the natural excitant of every organ.

Proof of this fact seems to me to be found in the enormous quantity of blood sent to the encephalon; in the force of impulsion communicated to that fluid, and in the motion which, in its turn, it impresses on the cerebral mass. Here nature seems to have so arranged every thing that a large quantity of blood should incessantly enter an organ which is in a permanent state of activity, excepting during sleep.

The ventricle and auricle of red blood, says Bichat, manifestly influence the brain by the fluid conveyed to it by the carotid and vertebral arteries. Now the fluid may, on reaching it, excite it in two ways; by the movement by which it is agitated, and by the nature of the principles which constitute it and distinguish it from black blood. It is easy to prove that the communication of the motion of the blood to the brain maintains its action and life. If we expose, on a living animal, a part of the organ, so as to see its movements, and if we afterwards tie the carotids, the cerebral movement is at times enfeebled, and the animal becomes giddy; at other times, the movement continues as usual, the vertebral arteries supplying the place of those that have been tied. In such case, no derangement takes place in the principal functions. There is always a ratio between the vital energy and the alternate depression and elevation of the brain. If a portion of the skull be removed from an animal, and the course of the blood, in all the vessels that proceed to the head, be intercepted, the encephalic movement is soon seen to cease, and life is extinguished. The same results are obtained by an equally conclusive experiment. If we inject water into the carotid of a dog, the contact of the fluid is not fatal, when the injection is performed with care; but if it be sent with force, the cerebral action is immediately disturbed, and is often restored with difficulty. At other times, agitation supervenes in all the muscles of the face, which disappears as soon as the impulse is diminished; if it be very strong, death may be the result.² It may thence be concluded, that the impulse and motion communicated by the heart to the brain are connected with the maintenance of the cerebral action, which augments, diminishes, or becomes extinct, according as the impulse is strong, weak, or entirely annihilated.

The pulsations, isochronous with the movements of the heart, which are perceived at the fontanelles, or in cases of wounds of the

¹ It need scarcely be said, that there is much of the imaginative and the hypothetical in the above physiological remarks.—*R. D.*

² Bichat, *Recherches Physiologiques sur la Vie et la Mort.*

head with loss of substance, leave no doubt as to the impulsion which that viscus communicates, during its systole, to the brain. This theory of the encephalic movements has been long demonstrated by the experiments of M. Richerand.¹

What is the degree of impulsion which the blood sent by the heart communicates to the brain? Can it be estimated by that which sets in motion, at each contraction of the heart, a weight of fifty pounds suspended to the lower limbs? Or can we admit, with M. Poiseulle,² that the total force which moves the blood in an artery is in a direct ratio with the area of the circle of the artery; or in a direct ratio with the square of its diameter, whatever may be the place it occupies? Without replying to these questions, which are accessory to our object, and perhaps not capable of being solved, I may remark that some physiologists have endeavoured to diminish the force of impulsion of the blood on the encephalon, by advancing, that the elbow formed by the carotid canal retards the course of the fluid; but in order that this should occur, we must suppose the arterial system to be emptied at the instant when the left ventricle sends the blood to the brain, which is never the case; consequently the curvature of the carotid, like that of other vessels, can have no influence on the progressive velocity of the blood sent by the heart.³

The degree, then, of impulsion communicated by the circulation to the encephalon is solely in a ratio with the quantity of blood carried to it: this quantity, according to the calculations—which, it must be admitted, are sufficiently imprecise—of Keil and Haller, being nearly one half [?] of the whole of the blood contained in the animal economy.

Natural phenomena, like potent medicines, produce disorder when they are carried beyond the proper measure; thus, the access of blood to the brain, which in the healthy state is the natural excitant of that organ, becomes, when it is too impetuous, the cause of different symptoms; so that the integrity of the functions of the brain is associated not only with the movement communicated to it by the blood, but also with the amount of this movement, which must have a physiological mean. When too feeble or too impetuous, it is equally injurious. The experiments of which we have spoken, and the opinions which we have emitted, sufficiently prove this.

¹ *Elémens de Physiologie—Mémoires de la Société Médicale d'Emulation.* 3^e année.

² *Thèses de Paris.*

³ Were it necessary to give a trivial demonstration of this reasoning, and yet an entirely physical one, I might say, that by curving in various directions a tube filled with water, and adapting to it a piston, we may see that the impulsion given it by the piston has the same result, as if the apparatus was straight; that is, the jet is continuous.—*B.*

Yet the author, farther on, appears to support the opposite view. It is well known that the jet from a pipe of a regular curve, connected with a reservoir, rises much higher than from a pipe, the curve of which is less, or which is angular.—*R. D.*

It is but necessary to observe for some time attentively those who are labouring under what is called active aneurism, or better, hypertrophy of the heart, to see that excess of action in that organ induces considerable derangement in the functions of the brain, and frequently becomes the cause of serious and mortal disease. Patients thus situated often complain of headache, giddiness, and, at times, lose all consciousness, in consequence of more or less cerebral congestion, or of a momentary sanguineous rush, (*raptus*,) constituting what is commonly called *le coup de sang*.¹

In many cases we may refer to the same cause the sensation of warm vapours about the head, of which they who labour under aneurisms complain, tinnitus aurium, convulsions of the muscles of the face, optical illusions, and even blindness, which sometimes precede apoplexy, and, lastly, cerebral hemorrhage itself.

If we examine those who experience the symptoms in question, as I have done for several years, we find the pulsations of the heart strong, precipitate, and often disordered; that the patients have long experienced palpitations augmented by the slightest exertion; that the pulsation of the carotid, radial and temporal arteries strike the finger with force; that the face is at intervals of a more or less violent red; the respiration hurried, &c. These last symptoms indicate that the left ventricle of the heart has acquired an augmented action, that it sends the blood with too great energy to the brain, and that it may tear, by too strong impulsion, the soft and delicate substance of that viscus, and give occasion to rupture of vessels, and, consequently, to cerebral hemorrhage.

It yet remains for us to sketch an historical summary of the correspondence between hypertrophy of the heart and lesions of the brain; to make known some of the facts embodied by authors, and to detail succinctly those which we have collected.

The coexistence of hypertrophy of the heart with disease of the brain is a very frequent physiologico-pathological phenomenon, which has been studied, however, but lately by those who have devoted themselves to the examination of the head. Many authors worthy of credit—Corvisart, for example—have asserted that Morgagni had described cases relating to this pathological point; but what that distinguished physician has said is extremely vague, and the most attentive perusal does not discover one conclusive fact.²

It appears that Baglivi first remarked—on opening the body of Malpighi, who died of apoplexy—a considerable thickening of the parietes of the left ventricle of the heart; but he was satisfied with noting this organic lesion, without deducing any conclusion from it in reference to apoplexy.³ Gibellini, in a work entitled *De quibusdam Cordis Affectionibus*, relates the detailed history of apoplexy

¹ *Coup de sang* means the loss of sensation and motion, resulting from cerebral hemorrhage, or from simple congestion of blood in the cerebral vessels.—*R. D.*

² Epistol xi., No. 16.

³ *Historia Morbi et Sectionis Cadaveris Marcelli Malpighi, archiatri pontifici. Opera omnia*, tom. ii. p. 380.

dependent upon the same cause. The following are its principal features. A man who, from his youth, had experienced palpitations, and who after mental trouble had presented different symptoms of aneurism of the heart, was struck with apoplexy after a full meal. He immediately became hemiplegic; his heart beat with violence, &c. These symptoms were relieved by bleeding, and he began to recover, but the signs of aneurism persisted. Eight months afterwards, a fresh attack of apoplexy occurred, which was cured by the same means; but at the end of some time the patient became again hemiplegic after an augmentation of the symptoms of disease of the heart. At length, the symptoms having progressively increased, they brought on a final attack of apoplexy, which carried him off. On dissection, there was found in the upper part of the left hemisphere of the brain, a pouch inclosing a half ounce of *decomposed lymph*; the ventricle of the same side was considerably distended, and contained a polypiform concretion (doubtless of blood); the lung of the right side was hepatised; and the heart, the size of which was doubled, adhered every where to the pericardium.

Lieutaud, after having related the case of Malpighi, as given by Baglivi, narrates in his work the following fact. A man 32 years old, a great drinker, (*potator strenuus*,) and almost always stupefied, had been subject for fifteen years to violent palpitation, succeeding to a bruise on the chest. These palpitations were perceptible to both eye and ear. He died suddenly and unexpectedly. On dissection, the cavity of the right ventricle of the heart was found larger than natural; and the ventricles of the brain were filled with black, grumous blood:—“*Lustrato cerebro, occurrunt ventriculi sanguine nigro et congrumeto turgidi.*”

It is important to remark, that the two last authors, and doubtless others, in pointing out some cases of disease of the heart accompanied by apoplexy, have established no relation between these two affections. Corvisart himself asserts, that his practice has presented to him no fact of that nature. From what I have observed, it seems to me impossible, that amongst the patients subjected to the observation of that great physician, celebrated for his perspicacity, several must not have presented this coincidence; there is every reason to believe, that it was owing to his not having examined the pain; that he did not observe them. This suspicion is converted into certainty, when we notice, in several of his cases, the super-vention of paralysis, evidently owing to some cerebral effusion. The *third* is especially remarkable. In the *sixth*, a person, labouring under aneurism, died suddenly during the night; the brain was not examined. As, in the majority of cases that I have seen, apoplexy occurred during the night: on the following day there was only paralysis.

M. Richerand, who has spoken, either in the *Mémoires de la*

¹ Histor. Anat. Med. Observ., 267. The author does not speak of the left ventricle of the heart.

Société Médicale d'Emulation, or in his *Elémens de Physiologie*, of the influence of the heart on the brain in the state of health, appears to have been one of the first that recognised this influence in cases of hypertrophy of the left ventricle of the heart, and who has justly appreciated it, by indicating one of its most remarkable effects. "The examinations of bodies of persons, who have died of apoplexy," says he, "have proved to me, that excess in the force of the left ventricle is an arrangement more favourable to apoplexy than a short neck, which, united with a large head, constitutes, according to the majority of physicians, the apoplectic make."¹ Numerous facts have proved the justice of this remark, which was put forward as a kind of feeler.

On the 27th Nivose, year XIII, Legallois read to the society of the *Ecole de Médecine*, of Paris, a very curious case of apoplexy, dependent on the too great force of the aortic ventricle. The woman—the subject of it—could make no sudden movement, without danger of suffocation; copious sweats accompanied this feeling; she slept but little, and could lie only on the right side; too tight clothes were singularly inconvenient to her. She had great appetite; and although her countenance was habitually pale, she was liable to frequent attacks of nasal hemorrhage. A violent or "thundering" (*foudroyante*) apoplexy terminated her career about her fifty-fifth year. The substance of the brain was torn, and infiltrated with blood, of which the ventricles contained also some ounces. The left ventricle of the heart was so large, and its parietes were so thick, that the author of the case properly regarded this hypersarcosis as a presumable cause of the *coup de sang*,² which had so suddenly ended her days.

M. Richerand subsequently communicated to the *Ecole de Médecine* a fact, highly important to the subject of which we are treating, and of which one of the most illustrious physicians and philosophers of this age (Cabanis) was the subject. In April, 1807, Cabanis had an attack of apoplexy; the first symptoms of which were dissipated by the resources of art. Two fresh attacks took place in the course of the autumn and before the spring of 1808, when fresh symptoms indicated a relapse. At length, on the 6th of May, a last, violent (*foudroyante*), apoplectic stroke terminated, in a few hours, the days of one who was so precious to science and philosophy. Dissection showed that the left ventricle was at least three times the natural size and strength, and its parietes were more than an inch thick; so that, at first view, there was an evident disproportion between the central organ of circulatory impulsion, and the rest of the machine. The ventricles of the brain contained about eight ounces of coagulated blood. The irruption had been so violent, that the partition called the *septum lucidum* was broken, and the substance of the projecting eminences in the interior of the cavity—as the optic thalami and corpora striata—was altered.

¹ Nosographie Chirurgicale, tom. iii. p. 15.

² See note to page 49.

The facts which we have cited would be enough to establish that there exists, in certain cases, a connection between hypersarcosis of the left ventricle, and different affections of the brain, especially apoplexy; at least, he who would maintain that this connection is uncommon, must found his opinion upon a small number of facts. This M. Rochoux has done, in his work on apoplexy, published in 1814, without reflecting, I believe, that a phenomenon may seem to be rare for no other reason than that it has not been sufficiently studied and confirmed. Such was the point of pathological physiology which I proposed to elucidate in 1819, by publishing the memoir, of which I have just given the theoretical part, with some modifications. This part was there supported by a goodly number of precise and positive facts, which formed the new complement and basis of this memoir. I shall reproduce these facts in the second part of this work, with some others drawn from my own observation, or from certain dissertations which have appeared on the subject.

Notwithstanding the authentic facts which had been published concerning the influence of the heart on the brain, and the connection of hypertrophy of that organ with apoplexy, it may appear surprising, that the author above cited should have persisted in his opinion for several years after the publication of those facts;¹ and yet, without speaking of my own opinion, and the cases which I have related in support of it, if I take up at random certain dissertations on diseases of the heart—that of M. Guillemin, for example,² in which the author had in no respect in view to treat of this point of pathological physiology—I see, that in six cases which he details, four present, in an evident manner, the coincidence between hypertrophy of the left ventricle and apoplexy. The author of another thesis, entitled, *On the influence of the heart on the brain, considered in respect to apoplexy*,³ who has treated his subject in a very extensive general point of view, relates thirteen cases of different diseases of the brain, in which he supposes that the action of the heart has been more or less implicated. Six of these cases exhibit remarkable coincidence between hypersarcosis of the left ventricle and effusions of blood and cerebral congestions! all of which was proved on dissection. I ought to remark on this occasion, that M. Rochoux, who has spoken of this dissertation in the second edition of the *Dictionnaire de Médecine*, endeavours to weaken the importance of the facts, by remarking that one only presented an accumulation of blood in a cavity (*foyer*), although there are at least two. To this it may be replied, that neither M. Ravier nor myself have ever pretended to limit the influence of the left ventricle on the encephalon in a state of disease to the production of sanguineous effusion; on the contrary, in my memoir, I particularly extend it to sanguineous congestions, and to *ramollissement* of the brain. As for the small proportion of cases of

¹ See the Dict. de Médecine, article *Apoplexie*.

² Paris, 13 Juin, 1818—Thèse.

³ M. Ravier, Paris, 1821.

hypertrophy of the left ventricle, which M. Rochoux says he has found in researches made on forty-two patients, I may observe, that this is a small number on which to establish statistical data. In the second place, I may adduce an objection already made by M. Andral to M. Rochoux, in his work on pathological anatomy,¹ that, at the period when M. Rochoux wrote, hypertrophy of the heart was a disease generally unknown to physicians, and that, therefore, it may have often escaped the pathological anatomist. If M. Andral held this language at the time, he will doubtless not change it now, and accord with our antagonist, that hypertrophy is rarely coincident with apoplexy; as he has recently inserted seven or eight cases in the 5th volume of the third edition of his *Clinique Médicale*.²

Lastly, I must not neglect to observe to M. Rochoux, that on this point of doctrine he is in opposition to the most distinguished pathological anatomists—MM. Lallemand, Broussais,³ Andral, Bouillaud, &c.; and that his singular perseverance, in the teeth of facts and opposing authorities, does not prove the exaggeration of which he gratuitously accuses me.⁴

His statistics—to the number of forty-two—doubtless have not power enough to invalidate the positive facts which I have related, and those that I have cited; not limiting myself to apoplexy, as he insinuates, but extending the influence of hypertrophy of the left ventricle to the different diseases of the brain, of which I have spoken above. Besides, I appeal to the good faith of the author. What do statistical computations most commonly prove? excepting that, for a given time, a certain number of facts occur under the influence of unknown causes; and, subsequently, we have another series of analogous facts, but with different modifications, &c. Lastly, I have a right to complain of the garbled and inaccurate manner in which the author has analysed my memoir, which he seemed to have forgotten in the first edition of the *Dictionnaire de Médecine*.⁵

The reader will pardon me if, in terminating this too protracted discussion, I add one word more. How does it happen that M. Rochoux remains alone sceptical regarding a theory so simple; I had better say, a fact of pathological physiology so manifest,

¹ Précis d'Anatomie Pathologique, liv. ii. 757.

² Clinique Médicale, tom. v. (Maladies du Cerveau).

³ Experience daily attests, that hypertrophy of the heart contributes to the continuance of gastritis, and that these two affections united lay the foundation for cerebral hemorrhage, apoplexy, &c. Broussais, Histoire de la dernière maladie du Général Foy.

⁴ How can I be charged with exaggeration, seeing that I have done nothing more than state the proof of the facts, without establishing any determinate proportion?

⁵ There are, besides, in the discussion of M. Rochoux, objections which I do not comprehend, such as the following:—"there would be nothing to object to M. Bricheteau, if we could conclude from the six cases which he relates, that all those he has seen resemble them."

I have drawn no such conclusion. What advantage would there be in such a conclusion?

founded on physiological considerations, and on the positive experience of such men as Legallois and Richerand, and upon numerous facts, which he only attacks by limiting their effects, and by opposing other facts observed in a given time? As if negative facts collected by him—and these few in number—could annul positive facts observed under other influences in the same period!!

MM. Bertin and Bouillaud, in their work on diseases of the heart, published in 1824, admit without any hesitation, and in the most precise terms, which we cite, the influence of hypertrophy of the ventricles on the organs, and especially on the brain and lungs. "Nothing is better demonstrated," say they, "in physiology, than the influence of the left heart on the circulation in the encephalon. Consequently, it might be admitted *a priori*, that one of the immediate results of hypertrophy of the left ventricle must be predisposition to apoplexy, encephalitis, and all kinds of cerebral irritations. What reason, indeed, foretels, observation confirms in too positive a manner. The majority of those in whom we have observed hypertrophy of the left ventricle have presented symptoms of cerebral congestion, and several have died of it."¹

In 1828, M. Menière published a memoir, entitled, *Observations on Cerebral Hemorrhage during Pregnancy, and at the time of, and subsequent to, delivery.*² He cites, at the end of his memoir, the curious remarks of one of his friends, who had examined a number of women who had died at different periods of pregnancy, or a little after delivery, in whom the left ventricle was evidently hypertrophied—that is, much more than double that of the right (a ratio established by Laënnec).

It was natural to think, that this morbid phenomenon was the result of excess of nutrition—of local plethora, produced by retention of the catamenia, whence the necessity of frequently bleeding females in this condition.³

It was natural also to infer, that this state of hypertrophy doubtless played some part in the production of the cerebral hemorrhages, which prove fatal during pregnancy and labour. But notwithstanding the plainness of this induction, M. Rochoux, always ready to make war against the material organic actions of the animal economy, will not admit it; and in order to repel it, he asserts, that women more frequently die of apoplexy, after the cessation of the catamenia, than during their period of fecundity. If this be an objection, I do not understand it. That women are subject to cerebral hemorrhage during gestation and accouchement, is a fact; it has been verified by M. Menière, and cannot be questioned without doing him injustice. And if in these women, or others similarly situated, hypertrophy of the left ventricle was remarked, we may say, that such a condition of the heart may have contributed to the development of the apoplexy.

¹ *Traité des Maladies du Cœur et des Gros Vaisseaux*, p. 351.

² *Archives Générales de Médecine*. Avril, 1828. Tom. xvi.

³ This idea we thought had been exploded by the initiated.—*R. D.*

M. F. T. Larroque, assistant surgeon to the 47th regiment of the line, towards the end of the year 1833, addressed to the *Académie Royale de Médecine* a memoir on the subject which occupies us. It had for its title, *Cases of Apoplexy, referred to hypertrophy of the left ventricle of the heart.* This communication, which contains some judicious remarks on the nature and seat of the cause that produces cerebral congestion, is valuable, on account of the exposition of the characteristic symptoms of hypertrophy of the heart, from its origin and during its development. It contains seven cases; two of apoplexy, and five of cerebral congestion.

This influence of the heart on the brain, or this connection between the diseases of the heart and those of the brain, had not escaped those physicians who devote themselves especially to mental diseases, which are doubtless almost all owing to physical lesions of the encephalic organ. Thus, my excellent friend, M. Falret, one of the physicians to the division for the insane in the *Hospice de la Salpêtrière*, has given me a note, from which it appears, that in ninety-two cases of dissection of such as had died of long-continued insanity, twenty exhibited different lesions of the heart, coincident with chronic alterations of the brain, or of its membranes,—alterations, in which sanguineous congestions, and cerebral hemorrhages, played a considerable part. At the end of his note, M. Falret adds, that this proportion between the diseases of the heart and those of the brain, is still greater in the fine establishment for the insane, which he directs, conjointly with Dr. Voisin, at Vanvres, near Paris.

Since the publication of my first researches on this point of pathological anatomy and physiology, I have repeatedly seen the influence of this state of the heart (hypertrophy) on cerebral congestion, and sanguineous effusion, which so frequently occur in the brain at an advanced period of life. I may refer—as containing some new documents of my own—to the medical part of the annual reports of the *Société Philanthropique*, from 1823 to 1830, and to some facts published in the 31st volume of the *Journal Complémentaire des Sciences Médicales*.

FACTS RELATIVE TO THE INFLUENCE OF HYPERTROPHY OF THE VENTRICLE OF THE HEART ON THE DEVELOPMENT OF AFFECTIONS OF THE BRAIN.

We consider that there are three kinds of cerebral lesions, which may be produced by the morbidly augmented action of the heart—sanguineous congestions, effusions of blood, and softening and disorganisation of the cerebral substance, with or without effusion of blood.

Sanguineous Congestions of the Brain.

CASE I.

Symptoms of hypertrophy of the heart—Attack of apoplexy—Death—Sanguineous congestion in the cerebral vessels and sinuses—Hypertrophy of the left ventricle.

Louis Germain, aged 57 years, had been rickety in his infancy; his chest was badly formed; neck short; head large; and face florid. For some years he had experienced palpitations, for which he entered the infirmary of the *Hospice de Bicêtre*, in July, 1814. His pulse was then frequent, hard, and irregular; the beats of the heart were very extensive, and sensible to both sight and touch. General blood-letting was advised, with leeches to the region of the heart, &c. He was tranquil, when, after a full meal taken in the evening, he suddenly experienced great difficulty of breathing, with loss of consciousness. The mouth was filled with foam; the countenance became livid; and he expired soon afterwards.

Necroscopy.—The sinuses of the dura mater were gorged with black and fluid blood; the substance of the brain was very firm, and the vessels of that viscus much engorged; but there was no blood effused, either into the cerebral tissue, or into the encephalic cavities. The left ventricle of the heart was of considerable size; the thickness of its parietes appearing to be more than doubled; and its capacity rather smaller than otherwise.¹

CASE II.

Attack of apoplexy—Death—Sanguineous engorgement of the brain and the cerebral vessels—Hypertrophy of the left ventricle.

Marteau, attendant at the Hôtel-Dieu, aged fifty years, of an irritable temper, had been long a prey to private grief. His countenance, and especially his lips, were habitually of a purplish red colour.

On the 16th of April, 1819, he was found lying, without consciousness, on the floor of his chamber; his face livid; eyes fixed; pupils dilated; respiration stertorous; pulse small and slow; skin cold and insensible; limbs completely relaxed, &c. He was immediately taken into one of the wards of the hospital, where he expired six hours afterwards, notwithstanding the most active and skilful attentions.

Necroscopy.—The vessels of the brain were gorged with blood, and the cerebral substance was strongly injected; the most careful investigation could not discover any trace of sanguineous effusion; the lungs were slightly gorged with blood. The heart, which was of considerable size, presented a marked thickness of the parietes of the left ventricle. The auriculo-ventricular septum was also very thick.

¹ This is by no means an uncommon occurrence.—*R. D.*

CASE III.

Symptoms of apoplexy—Death—Engorgement of the vessels and cerebral substance—
Hypertrophy of the left ventricle.

A man, aged forty-five years, was attacked, on the 8th of February, 1818, with every symptom of an apoplectic seizure. He was received into the Hôtel-Dieu on the same day. The symptoms had then disappeared, with the exception of some embarrassment about the tongue, and slight hemiplegia. The pulse was frequent and hard, and the heart beat with much force. On the following day, the speech was greatly embarrassed; the face pale and swollen; the mouth frothy; the respiration noisy, and the heart beat with force. (Bleeding from the foot; sinapisms; *emetised*¹ drink.) On the 10th, all the symptoms became aggravated; complete hemiplegia; respiration stertorous; pulsations of the heart very strong and irregular; pulse small; death.

Necroscopy.—The cerebral substance was firm and sound; vessels greatly injected, exhibiting minute drops of blood when the organ was removed by slices; cerebral protuberance slightly softened; heart bulky; parietes of the left ventricle much thicker than natural, whilst those of the right side were extenuated at certain points. The auriculo-ventricular cavities were in a healthy state.²

CASE IV.

Symptoms of apoplexy supervening in the course of disease of the heart—Death—
Sanguineous congestion in the brain and arachnoid—Hypertrophy of the heart.

On the 22d of May, 1820, a man was brought to the *Clinique interne* of the Faculty in a state of profound coma. It was impossible to obtain from him the least account of his disease. It was merely learned, from the persons who accompanied him, that he had been sick for three or four days, and had been almost the whole time in this state of stupor. The most prominent symptom was the coma, which became more and more intense. The face was red; the lips bluish and livid, as is frequently observed in organic affections of the heart. The pulsations of that organ were not very tumultuous; the respiration was loud and somewhat difficult. He died about 11 o'clock at night.

Necroscopy.—The body was of mean stature; there was no infiltration, as is seen in advanced stages of heart affections, but merely some livid spots, and dilated veins on the forehead. The dura mater was very adherent to the cranium; the arachnoid gorged with blood, as well as the sinuses and veins, which, when opened, discharged a large quantity of black blood. The cerebral substance was firm; the convolutions were red, especially at the inferior part of the right side. On cutting into the cerebral mass,

¹ See note at page 10.—*R. D.*

² Dissertation sur quelques Maladies du Cœur, par Guilhomet. Paris. Thèse de 1818.

a large quantity of minute red points were perceived in the medullary substance, which gave issue to small drops of blood. In each of the lateral ventricles there were two ounces of bloody serum. the pericardium also contained a small quantity; the heart did not appear to be larger than natural; the parietes of the cavities of the right side were extenuated and flaccid; those of the left very thick and extremely hard. The ventricle of the same side seemed a little larger than natural, and contained some fibrinous concretions. The other viscera were in a healthy state.¹

CASE V.

Vertigo—Confusion (*etourdissements*²) after palpitation—Attack of Apoplexy.

Sanguineous congestions in the encephalon, before causing death, frequently produce, for a number of years, confusion, vertigo, depravation of hearing and sight, partial paralysis, &c.

Martin Renaud, bootmaker, aged thirty-nine years, lost his father from apoplexy at the age of sixty-eight. After ten or twelve years military service, Renaud settled in Paris. Having been unfortunate, he experienced much mental distress. Three years ago, he felt violent palpitations, which gradually diminished under the influence of medicine. After these palpitations, in the month of July, 1818, he began to have vertigo and confusion, accompanied with tinnitus aurium, which threw him into a condition resembling drunkenness. This state continued about seven months, during which he took great care of himself; but on the 1st of February, 1819, he was attacked with apoplexy. He was immediately transferred to the Hôtel-Dieu, where he was bled in the arm. He recovered his consciousness after the blood-letting, but soon perceived that he had lost the use of his left arm. On the following day he returned to his home, where he continued to be treated for the paralysis of the arm. Forty leeches were applied at different times to the anus,³ which, with certain other means, concurred in diminishing the paralysis, &c. But after that time he always had dazzling, vertigo, and tinnitus aurium; saw objects larger than natural, but dimly, &c. The intellectual functions became affected; the memory was impaired; and he experienced a sort of sluggishness in the execution of all the functions of the intellect. His nights were sometimes much agitated: when he slept, a kind of delirium supervened; his heart beat with force; the pulse became excited; the face red; the head hot, and he had palpitations and lancinating pains. He then rose—pursuing the phantoms around his chamber, in a kind of somnambulism, &c.⁴

CASE VI.

Palpitations—Confusion—Vertigo—Other symptoms of cerebral congestion.

A hosier, fifty years of age, who had been subject from his youth to cephalic congestions, and to palpitations of the heart, had been

¹ Ravier, De l'influence du cœur sur le cerveau, &c. Thèse, Paris, 1821.

² The French use this term for the first degree of vertigo.—R. D.

³ See note, page 28.—R. D.

⁴ Ravier, Op. citat.

incommoded for about two years by a reduplication in the intensity and force of the palpitations, produced by a state of hypertrophy of the left ventricle of the heart, and accompanied by giddiness. The blood was sent towards the brain with such violence that there was confusion of sight, and he could not walk in the streets without support; his heart beating at the time more strongly than common. In the month of March, 1823, when he entered the fourth dispensary, the pulsations of the heart had such an action on the encephalon, that, when he worked, the loom appeared to move from him, turn round, rise and fall, or to move in a cadenced manner.

When he was lying down, it seemed to him that he was balanced in the air; and if he walked without support, he believed every moment that he was about to fall. During the night, he was disturbed by dreams in which he believed himself involved in inextricable difficulties; but which, at other times, carried him back to the pleasant days of his youth, in the midst of the fields which had witnessed his birth, &c.

The greater part of these symptoms—which were, doubtless, the result of a morbid afflux of blood towards the brain—were immediately dissipated under the influence of a bleeding from the arm, and especially under that of cupping in the region of the heart.

CASE VII.

Symptoms of hypertrophy of the heart—Confusion—Vertigo—Threatenings of apoplexy.

Mr. A., aged fifty-nine years, of a sanguine temperament, strong constitution, and irascible and hasty temper—whose sanguineous system was much developed, especially in the face—had never been affected with any disease except distant attacks of gout in the feet, from which he had not suffered much.

On account of his state of health, he had been compelled to quit every kind of labour for fifteen months. This was the commencement of the derangement in his health.

The transpiration, which was very copious in his feet when he took the least exercise, had much diminished; soon afterwards, vertigo manifested itself, which recurred frequently, accompanied by violent headache, the seat of which was at the vertex; at the same time, the cerebral arteries beat with violence. He complained, moreover, of heat in the head, dazzling, and tinnitus aurium; and the injection of the capillary vessels of the face indicated cephalic congestion, and a threatening of apoplexy.

He had suffered, for some time, under palpitation; and when the heart was explored, beatings much more intense and superficial than natural struck the hand of the observer forcibly; the pulse was hard, full, and without frequency. He experienced a sense of constriction in the precordial region, and obstinate constipation. He frequently gave himself up to paroxysms of anger, or to the deepest melancholy.

Of all the means that were employed, bleeding was the most

advantageous. Sinapisms, blisters, the seton even, produced only excitement; and the same effect resulted from several mineral waters. Repeated bleedings, alternating with the application of leeches to the anus,¹ procured considerable relief; but he still felt, from time to time, swimming in the head and painful pulsations, which appeared to me to be owing to the impulsion of blood sent with violence by the hypertrophied left ventricle.

When M. Alibert and myself were consulted by this patient, we agreed that hypertrophy of the left ventricle was the chief cause of the symptoms; and we advised him to persist in the use of the preventive bleedings, to take exercise, and to diminish the quantity of his food. The patient is still living. His son exhibits some signs of a simultaneous lesion of the heart and brain.²

CASE VIII.

Symptoms of hypertrophy of the heart from infancy—Cerebral congestion—Threatenings of apoplexy—Hypertrophy of the left ventricle.

General Foy, so celebrated in our parliamentary annals, had received from nature a robust constitution. He was possessed of extreme sensibility and an irascible temper, which he knew how to control. From his infancy, he had been subject to palpitations of the heart, which had gone on increasing, when he addicted himself to the labours of the closet, in order to prepare himself for important contests from the Tribune. From the year 1817, being then only forty years old, he had been several times threatened with apoplexy, which disappeared, at length, under the influence of repeated bleedings prescribed by Dr. Gall. The illustrious general afterwards placed himself under the care of M. Broussais, who had known and attended him in Italy, and who was aware that his patient was full of blood, and laboured under hypertrophy of the heart, the presence of which was evinced by palpitation and vertigo. He prudently combined demulcents with digitalis, and a mild regimen composed of milk—a treatment which had transient success.

In 1823, General Foy had symptoms of nephritis and enteritis, for which leeches were successfully applied in the place of blood-letting, to which he had great repugnance. The hypertrophy of the heart appeared then to make fresh progress, and the force with which the pulsations of the heart were felt beneath the clavicle caused the physician to presume that the arch of the aorta might participate in the state of phlegmasia of the abdominal organs.

The general maintained his ordinary health for eighteen months; that is, with disposition to cough, to palpitations and cerebral congestions; the tongue was slightly red, and the stomach so sensible that he could not eat any slightly stimulating diet, without being incommoded with palpitations, gastralgia, &c.; but, after the session of 1825, he had vertigo to such an extent as almost to cause

¹ See note, page 28.—*R. D.*

² Derived from my correspondence with a physician of a provincial town.

him to fall in the street, but which did not recur, as was apprehended. During the autumn, the distinguished orator of the opposition traveled into the Pyrenees—a journey which, notwithstanding the regimen prescribed by M. Broussais, was the cause of emotions and vivid excitement. On his return from his travels, the disease of the heart augmented greatly; and the cerebral symptoms, thus far so formidable, proportionably diminished, and played but a very secondary part in the disease of which he died on the 28th of November, 1825, in the last stage of active aneurism with hypertrophy of the heart, and gastro-duodenitis.

On opening the body, four or five ounces of a bloody serous fluid was found effused into the chest; the pericardium also contained about two ounces. As for the heart, it was of extraordinary size; when measured across, it was five inches and three lines broad, and thirteen inches in circumference. From above to below—from the apex to the base of the right auricle—it measured seven inches, and its circumference was seventeen. The parietes of the left ventricle were eight lines thick, and those of the right only two lines. In the aorta was a quantity of small ulcerations—some superficial and others deep-seated—with laciniated edges, excavated perpendicularly in the substance of the parietes of the vessel.

The intestinal canal, and especially the stomach and duodenum, presented traces of inflammation and extenuation of the mucous membrane.

The head was not opened.¹

It seems to us impossible to have the influence of hypertrophy of the left ventricle on the brain better depicted than in the course of the long disease of General Foy—a disease which had commenced in infancy, and for several years had threatened him with apoplexy; until, at length, the contractile force of the heart having lost its spring and its energy, the blood ceased to be driven to the brain with violence, and to produce the cerebral congestions to which the patient had been so often a prey.

Effusion of Blood into the Cerebral Substance.

CASE IX.

Excessive pain—Sense of suffocation—Infiltration of the lower limbs—Attack of apoplexy—Death—Effusion of blood into the right hemisphere—Hypertrophy of the left ventricle.

A woman, aged about fifty years, after having been unsuccessfully treated in several *maisons de santé* of Paris, was received into the Hôtel-Dieu, in May, 1816. Her pale appearance indicated suffering; for several months she had not slept; obliged to remain

¹ Extracted from the history of the last malady of General Foy, by M. Broussais.

day and night in the sitting posture, she experienced horrible anguish and pain of the epigastrium, which threatened her with suffocation. The pulsations of the heart could not be felt; the pulse was regular, feeble, and slow; the respiration loud and hurried. She had not a moment's rest, but cried out every instant from the violence of the pain; the lower limbs were swollen and infiltrated. Notwithstanding the absence of several symptoms characteristic of heart disease, its existence was suspected. Two blisters were applied to the thighs, to detract from the severity of the pain; at the same time, an antispasmodic mixture was given with tincture of digitalis, &c. Some days after her admission, it was observed with surprise, at the morning visit, that hemiplegia of the left side existed, and this affection had produced relief to her severe suffering. I had no doubt that she had had an attack of apoplexy in the night. She soon became indifferent to her condition, and more and more debilitated; the left arm swelled, and, what was remarkable, the pulsations of the heart were then felt distinctly; they were strong, hurried, and irregular; the face became infiltrated; the respiration more and more difficult; and she died about ten days after the appearance of the hemiplegia.

Necroscopy.—The heart was very large, and occupied almost the whole of the left cavity of the chest. The parietes of the aortic ventricle had acquired great thickness; the columnæ carneæ were of enormous dimension, and the auriculo-ventricular septum was equally hypertrophied. This increase was made at the expense of the right ventricle, whose cavity was reduced to almost nothing.

The brain presented, at the upper part of the right hemisphere, a small cavity, which contained a grayish *bouillie* mixed with blood; the cerebral substance in the vicinity of this effusion was softened and disorganised.

CASE X.

Sudden attack of apoplexy—Death—Hypertrophy of the left ventricle—Two apoplectic cavities in the right hemisphere.

A pavior, fifty years of age, fell down deprived of consciousness, and was taken to the Hôtel-Dieu two hours afterwards. On the 11th of April, 1816, he was in a comatose state; face pale, and pupil dilated; pulse full and slow; complete hemiplegia of the left side: (bleeding from the arm; mustard pediluvia). On the following day, bleeding in the foot; emetic tartar in a high dose. He partly recovered his intellectual faculties, but a febrile condition supervened, with dryness of the tongue and skin, &c. Death occurred on the 17th.

Necroscopy.—The right hemisphere of the brain contained a considerable cavity filled with blood, which occupied the middle lobe, and had no communication with the lateral ventricle: the corpus striatum of the same side had also a small yellowish cavity, which might have contained a hazelnut; it was lined by a mem-

branous expansion; the cerebral substance which formed the parietes of the cavity was yellow and softened. The traces of old effusion could not be mistaken.

The parietes of the left ventricle of the heart had acquired great thickness at the expense of the cavity. No obstacles were found at the cardiac orifices, and no traces of ossification.

CASE XI.

Aneurism of the heart—Attack of apoplexy—Death—Effusion of blood into the corpus striatum of the left side—Hypertrophy of the ventricle.

A woman, aged fifty-nine years, entered the infirmary of La Salpêtrière, on the 26th of February, 1808, to be treated for aneurism of the heart, with which she had been afflicted for several years, but whose progress was very slow. Bleeding, pediluvia, and antispasmodics, sensibly diminished the difficulty of breathing, as well as the palpitations. She was getting ready to go out, when, on the 15th of March, in making efforts to go to the water-closet, she fell, deprived of consciousness, into a comatose state, with hemiplegia of the right side. Respiration was stertorous, and the pupils fixed; face red; pulse frequent and hard: (bleeding in the foot; a purgative glyster).

Necroscopy.—An extravasation of blood was found, which had commenced about the corpus striatum of the left side, and had extended into the four ventricles. The heart was very large, and the left ventricle, the cavity of which was greatly contracted, was nearly an inch and a half thick; the cardiac orifices were free, and there were some points of ossification upon the arch of the aorta.¹

CASE XII.

Second sudden attack of apoplexy—Death—Two apoplectic cells in the left hemisphere of the brain—Hypertrophy of the left ventricle—Thinness of the parietes of the right ventricle.

A woman, aged fifty years, of small stature, was received into the Hôtel-Dieu in a state of insensibility and coma. The pulse was small and hard; hemiplegia of the right side. We learned that the woman had had a similar attack six weeks previously, from which she had recovered. She died the day after her admission into the hospital.

Necroscopy.—Two effusions of blood existed in the left hemisphere of the brain; the one appeared to be of longer standing than the other, and was also of less extent. A membrane began to be formed around a solid clot; whilst, in the other, the blood was still fluid. The heart was of considerable size in proportion to the stature of the individual; the parietes of the left ventricle were more than an inch thick, whilst the cavity would scarcely admit the extremity of the finger; the parietes of the right ventricle were much extenuated.

¹ Guillemin, Dissertations sur l'Apoplëxie; 1818.

CASE XIII.

Third attack of apoplexy during the progress of disease of the heart—Cure.

A man, thirty-eight years old, who had laboured for four years under heart disease, was attacked with apoplexy, for which he was carried to the hospital La Charité, where he was treated for hemiplegia by the *nux vomica*. Five months after his exit from the hospital, he had a fresh attack of apoplexy, from which he pretty well recovered under the use of appropriate means, and he again left the hospital. Seven months afterwards he was admitted into the Hôtel-Dieu for aneurism of the heart, of which he had the most characteristic symptoms. Amongst other phenomena, the pulse was extremely irregular, and so slow that it beat 36 or 40 times a minute. I then lost sight of him. He probably would die of a fourth attack. I have known, however, a female affected with aneurism of the heart, with hypertrophy of the left ventricle, who had six successive attacks of apoplexy, which she survived.

CASE XIV.

Extravasation of blood at the base of the brain owing to rupture of the carotid artery—
Death—Hypertrophy of the heart.

Delaulat, aged fifty-six years, had been liable to hemorrhage in his youth, and to headache in the adult age; much addicted to women and wine; he had been intoxicated, since the age of forty, two or three times a week, and after his drunken fit ended, vertigo existed to such a degree as to compel him frequently to quit work.

On the 28th of August, 1811, he was present at a dancing party, got drunk, and passed the night in the street. On the 30th, he again went to the tavern, where his wife found him lying on the floor; believing him to be intoxicated, she had him conveyed home, where he remained until the next day without any assistance. On the 31st of August, he was admitted at the Hôtel-Dieu with the following symptoms. Face red, and slightly tumefied; heat greater in the face than in the rest of the body; pulse strong, hard, full, and frequent; respiration very slow; profound coma, from which he could not be aroused by any excitation; mouth half open, without deviation of the lips, tongue, &c.; (sinapisms to the feet; leeches to the neck; veal water *emetised*¹).

Death occurred at a quarter before four in the afternoon.

Necroscopy, twenty-three hours after death.—Face livid, ecchymosed; engorgement of the veins of the neck; injection of the venous canals. Black coagulated blood was found at the base of the brain; after cutting into the cerebral protuberance at its junction with the corpora olivaria and pyramidalia, with the handle of the scalpel I detached the blood, which formed a tolerably thick layer, and perceived a laceration in the internal carotid, at the point where, having reached between the anterior and middle lobe, it divides into the anterior and posterior branches.

¹ See note to page 10.—*R. D.*

This laceration was irregular; the outer coat overlapped it, whilst the inner was retracted. The tissue of the artery was thinner than in the healthy state, and its calibre more considerable. The blood which had escaped from the laceration had inundated the base of the brain, penetrated into the ventricles, and even into the vertebral canal for some inches in depth. The brain was injected but healthy; the lungs were gorged with blood; the left ventricle was much thickened.¹

CASE XV.

Sense of heaviness in the head—Great mental distress—Apoplectic symptoms—Death—Aneurism and rupture of the basilar artery—Hypertrophy of the heart.

Espert, aged fifty-nine, copper-founder, of a very robust constitution, short neck, and very muscular, had been subject, for a long time, to a sense of weight in the head, which he was unable to describe. This was augmented when he made any great effort, walked rapidly, or drank more than common, which happened frequently. On the 4th of February, he was attacked with pneumonia, for which he was received into the Hospital La Pitié on the sixth of the same month. This disease terminated fortunately after two bleedings, and three applications of leeches over the seat of the pain. He was in full convalescence, and ready to leave the hospital, when he learned, on the 26th, of the death of a child whom he much loved. This news brought on fainting, which continued for some hours. In the evening, fever supervened; and on the next day, at my visit, I found him in the following condition. Face florid; tumefaction of the jugulars; respiration high, and a little painful on the right side, the old seat of the pneumonic pain; pulse hard, full, strong, and frequent; continual giddiness when erect, or in the sitting posture. This last symptom did not attract my attention much, as it had continued during the acute period of the first disease: (a copious bleeding.) In the evening somnolency.

On the 28th, permanent apoplectic state; respiration slow; pulse frequent, hard, and very strong, the artery vibrating; coma; involuntary movements; redness and tumefaction of the face. He died, somewhat suddenly at one o'clock in the afternoon, without any change in his condition.

Necroscopy twenty-seven hours after death.—There was an enormous quantity of blood effused at the base of the encephalon; the brain having been separated from the medulla oblongata, and turned base upwards, the basilar artery was perceived to be aneurismatic above the cerebral protuberance (mesocephalon), and towards the confluence of the two branches which it furnishes. The aneurismal dilatation was an inch in diameter in every

¹ Serres, *Nouvelle division des apoplexies. Annuaire medico-chirurgical des hôpitaux et hospices civils de Paris*. The cause of the brevity of the author on the subject of hypertrophy of the heart, is owing to its being then very little known.

direction, and the sac, when inflated, might be about the size of a hen's egg; its form was round, and slightly flattened at its upper surface, at the part which corresponds to the base of the brain; it was entirely empty, and had, at its outer side, a circular aperture with irregular edges, the diameter of which might be a line and a half; its parietes were extenuated, but uniformly so. The middle coat presented that cartilaginous condition which is so often observed in the arterial polygon at the base of the brain.

The blood which had escaped at this opening, was estimated at a pound; it had followed the layers of the meninges, and had passed with them into the ventricles, which it distended. The brain and cerebellum were healthy. The left ventricle of the heart was thickened.¹

If it be difficult to admit that hypersarcosis of the heart alone caused the aneurism of the basilar artery, it is at least probable that it caused its rupture.

CASE XVI.

Profound coma—Hemiplegia of the right side—Death—Extravasation into the hemisphere of the brain—Hypertrophy of the left ventricle.

On the 2d of May, 1819, a woman was received into the Hôtel-Dieu, who died on the day of her admission. She was in a state of deep stupor; did not utter a word, and appeared devoid of sensibility over the whole of the right side; the pulse was small and frequent, and the respiration laborious.

Necroscopy.—Nothing remarkable was found at the surface of the meninges, or at the base, or in the ventricles of the brain; the cerebellum likewise appeared to be in a healthy state. We were about to leave the head and proceed to the chest, when one of the assistants laying hold of a scalpel plunged it into the middle part of the left hemisphere of the brain, and penetrated a cavity in the cerebral substance, which contained about a tablespoonful of black semi-fluid blood. This discovery perfectly accounted for the symptoms observed during life.

The pericardium contained scarcely any serous fluid; the heart, as large again as is usual, was firm and hard; the parietes of the left ventricle were more than an inch thick; the lungs and the abdominal organs presented no lesion.²

CASE XVII.

Sudden attack of apoplexy—Hemiplegia of the right side—Employment of *nux vomica*—Death—Extravasation of blood; and a cavity in the left hemisphere of the brain.

Jacob, a kitchen gardener, aged forty-five years, of a sanguine temperament and plethoric, was attacked with apoplexy, without

¹ If the author speaks so frequently of hypertrophy of the heart, and neglects to verify it during life, it is owing to but little attention being, at the time, paid to that kind of lesion.

² Ravier, *De l'Influence du Cœur sur le Cerveau*.

any known cause, on the first of January, 1819, after which he became hemiplegic.

He entered the Hôtel-Dieu on the 6th of January. The whole of the right side was absolutely insensible, and the loss of muscular contractility was complete. The tongue was also struck with paralysis, so that the patient experienced the greatest difficulty in making himself understood.

On his admission he was bled in the arm; sinapisms were applied to the legs, and he was put upon the use of a *tisane*, composed of baln, arnica, and a few drops of acetate of ammonia, but without the least success. The bleeding was continued twice at intervals, owing to the pulse being too strong and full. Three months passed over without any great change in the situation of the patient, when he was put upon the use of the alcoholic extract of nux vomica. At first, a grain of that substance was given, which was gradually raised to ten; this dose having produced violent twitchings, the remedy was discontinued, but resumed soon after, as it was observed that he could slightly move the paralysed limb. But, on the 24th of May, the dose of the medicine having been carried to six grains, the twitchings returned with as much force as before, and were succeeded by stupor, which soon became converted into complete coma. He died about ten o'clock at night.

Necroscopy forty-eight hours after death.—The meninges were infiltrated with serosity; the dura mater of the left side having been divided crucially, a yellowish, opaque fluid, of almost syrupy consistence, and manifestly purulent, was discharged. The part whence the pus seemed more particularly to flow was the middle and lower part of the left hemisphere, where, on removing the pia mater and the arachnoid, a cavity was discovered, the bottom of which communicated by a small aperture with the most hidden portion of the left ventricle, termed the *digital* or *encyroid cavity*.¹ The parietes of the cavity were lined by a kind of very thin membrane, and the fluid which the cavity contained was estimated at about two ounces, reckoning that which ran into the left ventricle. The right ventricle contained nearly a spoonful of yellowish fluid, but more transparent than the preceding. The heart, which was loaded with fat, was of twice the ordinary size; the cavity of the left ventricle was so small that it would not admit the end of the little finger. The parietes of the same ventricle were extremely thickened. The right ventricle was slightly dilated. The lungs were perfectly healthy. The abdomen exhibited nothing unusual.

¹ Inferior cornu.—*R. D.*

Softening and Disorganisation of the Brain, with and without Effusion of Blood.

CASE XVIII.

Oppression of several years duration—Tumultuous pulsations of the heart—Loss of consciousness—Hemiplegia of the left side—Death—Disorganisation of the corpus striatum, with effusion of blood.

A female, 36 years of age, who had been subject for some years to a sense of oppression, and had often been affected with colds, enjoyed, notwithstanding, tolerably good health.

On the 3d of July, 1810, she was found deprived of consciousness, lying upon the floor, and paralysed in the left side. She was carried to the *Maison de Santé* of the Faubourg Saint-Martin. The countenance was livid and the respiration nearly natural; the pulse, hard, irregular, and tremulous; the heart beat tumultuously.

On the 4th, continuance of the hemiplegia: (a blister between the shoulders, julep, and decoction of the valerian root, with orange peel.)

On the 5th and 6th no change; gradual sinking: (sinapisms.)

On the 8th, she died at six in the evening.

Necroscopy.—Much blood in the vessels of the dura mater. Somewhat considerable infiltration of serous fluid between the arachnoid and pia mater of the upper surface of the brain. The whole encephalic mass was very soft; the right corpus striatum contained within it two coagula of blood of the size of a hazelnut, lodged separately in pouches of a regular round shape, the parietes of which were softened, and, as it were, suppurated for the thickness of several lines. The corpus striatum was altogether softer than that of the opposite side, and its vessels were greatly injected. The heart was large for the size of the individual; the right auricle was considerably dilated, and contained a polypiform concretion, with much black coagulated blood. The ventricle of the right side was greatly dilated, its parietes were thin, and, to the extent of almost a line in thickness, presented a kind of fatty degeneration. The left ventricle was dilated, and its parietes thickened.¹

CASE XIX.

Apoplectic symptoms—Hemiplegia of the right side—Death—Extravasation into the left hemisphere—Cerebral substance softened, disorganised.

A woman, 65 years of age, was carried to the Hôtel-Dieu about the end of December, 1816. She had been found in her house, lying extended on the floor, and deprived of consciousness. She presented every sign of apoplexy—coma, insensibility, distortion of the mouth, stertorous respiration, and paralysis of the right side. We were informed, that eighteen years previously she had expe-

¹ Rochoux, Recherches sur l'Apoplexie, p. 9.

rienced a similar attack, which had likewise been followed by hemiplegia. She was bled in the arm, but without success. Death occurred in the course of the night.

Necroscopy.—The brain having been exposed, and dissected, a considerable extravasation of blood was discovered in the middle lobe of the left hemisphere. A little more externally there was a portion of the cerebral substance softened, disorganised, and of a yellowish colour, surrounded by a tolerably thick layer infiltrated with blood. The heart was not very voluminous, but the cavity of the left ventricle had almost disappeared, on account of the thickening of its parietes, the texture of which was, moreover, dense and compact. The right ventricle was oppositely situated.

CASE XX.

Aneurism of the heart—Attack of apoplexy—Hemiplegia of the right side—Death—Effusion of blood into the left hemisphere—Disorganisation of the cerebral substance near the cavity—Hypertrophy of the heart.

A woman, aged 59 years, was admitted into the Hôtel-Dieu on the 5th of July, 1816, with all the symptoms of active aneurism of the heart; face livid; lips violet coloured; respiration loud and hurried; pulse hard and irregular; sensation of hot vapour about the head; anxiety; insomnia; strong and irregular pulsations of the heart, &c. Digitalis was administered, which was carried gradually to a considerable dose with apparent success. The patient was tranquil and relieved; but a few days afterwards she was struck with apoplexy in the night, and the following day, at my visit, we found her paralysed in the right side, with distortion of the mouth, and difficulty of speech. The symptoms of disease of the heart experienced, at this time, a sensible diminution. The hemiplegia was subsequently combated by *nux vomica*, with some hopes of success; but motion was only imperfectly restored, to cease again afterwards. The symptoms of disease of the heart recurred with greater intensity, and the patient, enfeebled by two diseases at once, gradually lost ground, and died at the end of November.

Necroscopy.—In the left hemisphere an effusion was found, which occupied the optic thalamus, and had penetrated from thence into the lateral ventricle. The cavity which contained the effused blood was covered internally by a layer of yellowish purulent matter, which had penetrated with the blood into the ventricle by the opening in question. The cerebral substance in the vicinity of the effusion was greatly altered over a certain space. The heart was very large; the parietes of the left ventricle were very thick, and the columnæ carneæ had acquired considerable thickness, whilst those of the right ventricle were by no means distinct.

CASE XXI.

Suppression of the menses—Palpitation—Hemiplegia—Death—Disorganisation of the right hemisphere—Hypertrophy of the left ventricle.

A seamstress, aged 24 years, of feeble constitution, had suppression of the catamenia at twenty years of age, which caused palpitation, occasional fainting, and constant cough. These symptoms were quieted, and menstruation was restored. Two years afterwards, fresh suppression; great mental distress; work became a task; increase of the palpitation, syncope, hemiplegia, &c. When transferred to the *Clinique* of La Charité on the 11th of April, 1802, her health was greatly decayed. Face pale; breath fetid; respiration high and frequent; slight pain in the right side; pulsation of the heart very extensive, tumultuous, and perceptible to the sight; complete hemiplegia with infiltration; pulse small, frequent, and feeble in the paralysed side, but more developed, somewhat strong, even, in the right side. The patient lived five days in the hospital, dreadfully tormented by a sense of suffocation, which recurred every instant. She remained constantly lying on the paralysed side. Death occurred on the 16th of April, after a long and painful agony.

Necroscopy.—The left hemisphere of the brain was found in a state of manifest decomposition; its colour was ashy gray, and its consistence that of a thick *bouillie*; the left lung was crowded towards the top of the chest, and reduced to half its natural size. The heart occupied the greater part of the left side of the chest; the pericardium contained a little serous fluid. The heart had acquired an extraordinary size, in proportion to the stature. The right cavities of the organ, and the left auricle, which was a little distended, presented no traces of any other lesion. The left ventricular orifice was ample, but on the mitral valves were observed vegetations, analogous to those produced by syphilitic disease; the middle part of the free edge of this valve was tipped with a tubercle of the size of a hazelnut, implanted on the valve. The cavity of the left ventricle had acquired a considerable size; the fleshy parietes were much thicker than in the natural state.¹

It cannot be doubted, that in this case the hemiplegia had resulted from an attack of apoplexy at the time of the admission of the patient into the hospital. The primary cause of the organic lesion met with in the brain, must be referred to the extravasation of blood.

CASE XXII.

Third attack of apoplexy, preceded by palpitations—Hemiplegia of the right side—Death—Effusion of blood into the left hemisphere of the brain, with disorganisation of the cerebral substance—Hypertrophy of the left ventricle.

In 1827, I was called to see Madame * * *, who was in the fourth day of an attack of apoplexy. I found her in the following state:—

¹ Corvisart, *Essai sur les Maladies du Cœur*, p. 74.

paralysis of the upper and lower extremity of the right side, with stiffness of the joints; general sensibility obtuse, especially in the upper extremities; sight of the left eye very weak; complete blindness of the right. She was speechless, and did not appear to recognise any one. The mouth was distorted on the left side; the pupils were dilated and immovable; the eyes fixed; haggard; the tongue turned to the right; the mouth full of bloody mucus; deglutition executed with difficulty. She was in a state of complete stupor; the respiration slow and stertorous: the pulse slow, full, and strong; the pulsations of the heart so much developed that they could be perceived with the naked eye; they were tumultuous; the abdomen was tense, but without pain; the urine and fæces were discharged involuntarily.

Venesection in the arm furnished but little blood, on account of the difficulty with which it flowed; derivatives—such as emetic tartar, a blister, and a purgative clyster—produced no advantageous effect. Delirium supervened, with grinding of the teeth, the stupor changed into coma, and she died in the evening.

The information which I obtained indicated that she was 42 years of age, that she had laboured under palpitation of the heart for many years; that her catamenia had been suppressed for three years, after the loss of her fortune; and that in the interval she had experienced two attacks of apoplexy, which had on each occasion left hemiplegia of the right side.

Necroscopy.—The head was large, and the structure of the body athletic. An incision into the integuments caused the discharge of a large quantity of black, diffuent blood. The meninges were greatly injected; there was a small quantity of blood infiltrated between the arachnoid coat and the pia mater, particularly of the left side. The cerebral convolutions were much flattened, and the cerebral substance of a rosy hue. About four ounces of black, concrete blood were found extravasated in the centre of the left hemisphere. The cavity which contained this clot would easily have admitted a hen's egg. Its parietes were torn, and reddened by the contact of blood; the softening and disorganisation of the cerebral substance extended three or four lines in depth. In the part thus disorganised there was a multitude of small points of blood. In front of the hippocampus minor, (*Ergot de Morand*,) a laceration was observed, by which the blood of the cavity escaped into the left ventricle; the right contained none; its parietes, which were almost wholly dried, seemed to have sunk down upon each other.

The heart was at least double its ordinary size. The parietes of the left ventricle were nearly two inches thick; the columnæ carneæ had acquired considerable size, as well as the septum of the ventricles. The right ventricle was dilated, and its parietes a little thicker than in the healthy state; the auricles exhibited nothing particular, and the same may be said of the cardiac apertures and the valves, if we except a few points of ossification on the floating margins of the sigmoid valves of the aorta. The lungs were the

seat of decided congestion. The mucous membrane of the stomach was nearly uniformly red.¹

Conclusions and general remarks.—If, pursuing the natural inclination of the physiological physician, who investigates the probable cause of the morbid phenomena which he observes, we seek to discover that of the encephalic lesions noticed after hypertrophy of the heart, we shall probably find it altogether in the action of the left ventricle, augmented in thickness, force, and size. The ventricle under such circumstances sends the blood with so much violence to the brain, that its vessels are ruptured and its delicate substance torn; whence occur cerebral congestion, effusion of blood, and, of consequence, organic degeneration; of which we have related cases. We repeat—without pretending to calculate the force of the heart, or to establish the scale and limits of its contractile power—we see in it a dynamic and mechanical operation, a power set in action by the laws of life. The agent of this power is the column of fluid, which, not meeting with a resistance equal to the impulsion communicated to it by the heart, tends to escape from the canals that contain it. By adopting a material comparison to explain in what manner we conceive this physiological and pathological phenomenon to be accomplished, we do not pretend to assimilate the mechanism of the organic functions rigorously to the laws of physics, although all the experiments cited above go to the support of the comparison which we make here. We may add, as a still more decisive proof, drawn from analogy, that if we send a hot injection with great force into the dead subject, we produce artificial effusions into the parts of the brain that receive the greatest number of vessels.² M. Serres, in the work already quoted, also remarks, that by forcing fine injections into the carotids, they enter the apoplectic cells, and in some measure simulate extravasation: (page 276.)

It has been imagined, that this coincidence between diseases of the heart and those of the brain might be sometimes explained by embarrassment of the circulation, caused by ossification of the valves of the heart, or of the arterial trunks. At other times, the existence of an aneurismal state of the cerebral vessels has been supposed, which predisposes them to be ruptured by the least effort of the blood. I have not observed any ossification in the cases which I have examined, and I know not of any cases of it reported by authors. But, admitting the existence of such ossifications, I do not well comprehend how they could present to the returning venous blood an obstacle capable of producing an effusion by reflux or *regorgement*. This is doubtless far from being the result of such a cause as the violent contraction of a muscle so strong as the heart, whose thickness and contractile power are

¹ Extract from the Memoir of M. F. T. Larroque, deposited in the Archives of the *Académie Royale de Médecine*; cited above.

² See my *Mémoire sur l'apoplexie*, in *Journal Complémentaire des Sciences Médicales*. Tom. i.

evidently doubled. As for aneurismal dilatations, we can well conceive that they might singularly predispose to effusion. We have, indeed, related a case of the kind, borrowed from M. Serres. If we examine the most simple phenomena of the circulation, observed on ourselves, we may see that in consequence of vivid emotion, the heart beating with force, the pulsation of the blood in the brain may be distinctly felt, and seems to produce the effect of painful percussion on a sensible organ. Let us then suppose the contractile force of the heart to be doubled; and in place of a painful impulsion there will be a still more violent effort; and, consequently, perhaps a dilatation and rupture of the small vessels of the brain. This is exactly the apoplectic stroke. We have many times seen, in the corpus striatum and in its vicinity, the small vessels manifestly distended and ruptured; and particularly with M. Leperrey, formerly *interne* at the Hôtel-Dieu, whom a premature death has removed from the profession; we have seen, we say, a multitude of small vessels, dilated and ruptured, disseminated over the inferior paries of the ventricle. The pathological state of these vessels had been the source of a violent (*foudroyante*) cerebral hemorrhage, which had carried off the patient. We have related (case the 14th) an instance of rupture of another kind, extracted from the memoir of M. Serres.

Were we to regard only the surfaces of things, the facts, which we have related, would establish, at first aspect, rather a coincidence than a rigid subordination, and a kind of hierarchy (?) between two kinds of diseases (hypertrophy of the heart and apoplexy); and we should be right, to a certain point, in asking for a demonstration of this topic of doctrine, which, as M. Larroque remarks, in the memoir quoted above, has been a subject of dissidence amongst physicians. There are two methods of dispelling the doubts that have arisen on this matter; the first consists in indicating, with precision, the nature, seat, and conditions, of the force of impulsion of the central organ of the circulation; the second springs naturally from the analysis of observed facts. In the former case, if the hypertrophy exists any where than in the left ventricle, which sends the blood directly into the aorta, and then into the carotids; or if there be any obstacle to the exit of the blood, sent out by the hypertrophied ventricle, the cerebral congestion does not take place, or at least it is slight and imperfect. In the second case, it is impossible to deny the influence of the heart on the brain, when the exposition of symptoms has shown that the signs of hypertrophy have long preceded those of cerebral congestion, as is seen in the relation of the case of General Foy, for example. On this point we are, we think, justified in remarking, that in the greater part of well-constituted individuals, diseases rather tend to exclude each other when they are coincident, unless there is subordination of morbid effects, as in the subject that occupies us, or unless the disease is propagated by continuity of tissue. We may readily conceive, for instance, that a person who labours under pleurisy, may be affected almost simultaneously with pneumonia;

but there would be great reason for the presumption, that he would not have an attack of apoplexy whilst the lung was a centre of fluxion. If, therefore, this *simultaneity* is observed in the course of active aneurism of the heart, it is by virtue of a peculiar mechanism, or rather of an etiology, in which the disease itself becomes the cause of other morbid disorders.

Amongst the facts which we have related, some are imperfect and somewhat inconclusive as to the succession of symptoms ; but in all (the living excepted) the coincidence between the hypertrophy of the ventricle and the cerebral affection existed ; and in the very great majority of the sick, tinnitus aurium, vertigo, *coups de sang*, and hemiplegia, left no doubt as to the presence of cerebral congestion. In none of those who died was there any obstacle to the impulsion of the blood towards the brain. On the other hand, the almost constant diminution of the cavity of the ventricle is a condition that singularly favours the progress and velocity of the blood towards the encephalon. We have almost always neglected to point out the external conditions of the constitution called *apoplectic*, inasmuch as this complex peculiarity of organisation is most commonly secondary, and a multitude of persons die of apoplexy, without presenting any of the traits of such constitution ; perhaps, however, we ought to except extreme shortness of the neck, which indicates a corresponding approximation between the heart and the brain, and, therefore, a much less space to be passed over, whence results a greater power of distension on the part of the blood sent forth by the central organ of the circulation.

To reply to objections which have been made, on greater or less foundation, we may say, that as regards the congestion and exhalation of blood from the meninges, &c., which are mentioned in many of the cases reported by authors as the effect of hypertrophy of the heart, it must be admitted that they may have depended upon some other cause—topical or remote ; and that this cause might, in certain circumstances, complicate the pathological condition of the heart, without being in any manner under its dependency. There is, in truth, nothing absolute in physic ; and sad experience shows that almost every thing may be contested by tenacious and quarrelsome spirits : in the art of observing and analysing facts, there ought to be a rectitude and good faith, which should put a bridle on the mania for disputation. When several causes are found in operation in a complex case of pathological physiology, preference should be given to the most material and the most evident.

Although we have divided the cases reported above into three series, in one of which is comprised apoplexy, properly so called, it must not be inferred that we wish to restrict the term to those extravasations into the encephalon that are collected in a cavity (*en foyer*). Far from it ; we are satisfied, as M. Serres has well established, in the memoir already quoted, that this pathological condition may be caused by engorgement of the meninges, and of the capillaries of the brain ; the cerebral substance is then very dense and consistent, and when it is sliced away, we perceive here

and there a multitude of small vessels distended with blood, from which minute drops often escape. This state is almost always accompanied by more or less effusion of a reddish serous fluid, either into the ventricles, or at the base of the brain.

We may remark, *en passant*, that if every idea contained in the memoir of M. Serres be not received without dispute, and that if the system, which he adopts relative to apoplexy, have the inconvenience of confounding different diseases of the brain and its membranes—at the present day considered distinct—we cannot refuse that learned anatomist, physician, and zoologist, the merit of profound views, of remarks full of sense and ingenuity, with which he has dexterously combined many rare cases and experiments of his own. In several of these cases and experiments, the effusion often produced no apoplectic symptoms, properly so called; in others, on the contrary, the symptoms were well marked, although there was no effusion into a cavity (*en foyer*), or results which led the author to infer that the effusion or extravasation was the consequence and not the cause of the apoplexy, &c.

To have well established a point of doctrine in medicine, is almost to have demonstrated its utility; and it would be very easy for us to make the application of that which occupies us. If a man were to present himself to your observation, with a plethoric constitution, strong and extensive pulsations of the heart, which raised the stethoscope against the ear, with a hard pulse, &c., you might conclude that this man was affected with hypertrophy of the heart; and you might think that he ran but little risk, on account of that pathological state, inasmuch as a person may live long with hypertrophy of that organ. But if you made a more extensive application of your knowledge on this matter, by supporting yourself on facts, you might apprehend that your patient might be struck with a *coup de sang*, or with apoplexy, long before the ordinary term of the disease of the heart. This datum will teach you to meet and prevent cerebral congestions which threaten existence, as in several of the cases which we have related. That of General Foy is especially of such a character as to strike the attention. Who will say that the career of this illustrious orator might not have been prolonged, if, instead of having been foolishly purged under false and hypothetical indications, consideration had been paid to the hypertrophy of the heart, as M. Broussais had done in Italy long before, and had bled him largely.¹ M. A., whose case is related before, would doubtless have died from some *coup de sang*, if, according to the advice given him, the augmented action of the central organ of the circulation on the brain had not been combated by the same means. The utility of the practice is farther shown in the follow-

¹ M. Bricheteau, in detailing Genearl Foy's case (p. 60), has omitted to mention this supposed error, which he castigates more warmly, perhaps, than is consistent with strict professional etiquette. The professional adviser, at the time, had doubtless, as he conceived, ample reason for the course he pursued.—*R. D.*

ing case, reported by M. Larroque, in the memoir previously cited.

A wine merchant, aged 50 years, formerly a soldier, of a sanguine temperament, strong constitution, and apparently enjoying excellent health, had been affected for several years with violent palpitation of the heart. Two years ago (after great mental distress) headache, sense of suffocation, syncope, tinnitus aurium, sparks before the eyes, &c., were joined with the palpitation.

Under the least contrariety, all these symptoms increased, and a true apoplexy succeeded, which yielded promptly to copious bleeding at the arm. This condition has been frequently repeated, and hitherto has always yielded to the same means. He experiences constant pain in the region of the heart; and, when the organ is explored by the stethoscope, it presents the following signs: the pulsations are heard in extraordinary force over almost the whole of the left side of the chest, and when the instrument is applied over the region of the heart, it is forcibly repelled against the ear; these pulsations are regular, as well as those of the wrist. It is very evident, adds the author, that the patient is labouring under hypertrophy of the heart, on which all the apoplectic symptoms are dependent. Blood-letting has succeeded in preventing the development of mortal symptoms; so far, there has only been cerebral congestion; or, if effusion has existed, it has been but slight. It is also nearly certain, that he will ultimately die of apoplexy with extravasation, caused by the excessive force with which the heart sends the blood to the brain (case 7, page 59).

From the preceding facts and considerations, the following propositions may be deduced.

I. The energy with which the heart, more or less in proximity to the head, sends its blood to the brain, in a state of health, as well as of disease, exerts an influence on the character and extent of the cerebral function, and even of the instinctive and intellectual faculties.

II. Hypertrophy of the left ventricle of the heart may produce cerebral congestion, *coup de sang*, and attacks of apoplexy, by the simple abnormal impulsion which it communicates to the blood; and this effect is far from being uncommon.

III. The too strong impulsion of blood in the encephalon may cause laceration of the cerebral pulp, and dilatation and rupture of vessels in those parts of the brain that receive most of them; such rupture being prompt and easy when those vessels are affected with aneurism.

IV. The essential condition—we may say, the *sine qua non*—of cerebral congestion or effusion in consequence of hypertrophy of the heart, is the absence of every obstacle to the course of the blood between the left ventricle and the encephalon; such would be, for example, ossification of the sigmoid valves of the aorta; contraction of the orifice of that artery; ossification of the arteriolæ; &c.

V. Another condition, which favours and accelerates the impulsion and congestion of blood towards the head, and must hasten

their consequences, is contraction of the hypertrophied ventricle. Dilatation produces a contrary effect by augmenting the size of the heart, and enfeebling its contractile power.

VI. The knowledge of the influence of hypertrophy of the heart, on the development of cerebral congestions and apoplexies, is of direct utility in the practice of the art, as it indicates certainly the means of preventing and of combating those diseases, and often of preventing their return.

SECTION II.

On the influence of lesions of the lung on dilatations of the heart—Of that exerted by hypertrophy of the right ventricle on the pulmonary circulation, and on hemorrhages of the lungs.

It is but necessary to cast a glance at the anatomical structure of the chest, and to bear in mind the connections of the viscera within it, to conceive what disorder must arise from an increase in the size of the heart, from its tumultuous movements, and from the doubled or tripled energy of action of its parietes—a disorder which must especially arise, when a state of phlegmasia or of accidental adhesions cramps its movements, or an effusion into the cavity of the pericardium, or of the thorax, contracts still more the narrow space in which that viscus is always compelled to move. Thus, we often remark that simple hypertrophies of the heart produce great difficulty in breathing, pulmonary hemorrhage, &c., even when the lungs are sound; whilst, on the other hand, tuberculous affections of the lungs produce palpitations and great disorder in the movements of the heart, before even the first symptoms of phthisis have manifested themselves. The pulsations of that organ are, at times, so marked, and so strongly communicated to the ear by an inflamed and compact lung, that, at first, it might be believed the patient—affected with pneumonia or pulmonary tubercles—had a disease of the heart. This error has been committed a number of times.

What we have just said is, then, of a nature to demonstrate, that, in the chest at least, the reciprocal action which the neighbouring organs exert on each other through the circulation, by compression or simply by locomotion, is worthy of some attention, and may give rise, in the abnormal state, to very serious symptoms. It is almost the same with the abdominal cavity, although the extension of its parietes greatly augments its dimensions: thus, when the liver and the spleen have acquired a considerable morbid development, they repress the functions of the stomach, either by invading the space allotted to it in its greatest development, or by compressing the vessels that pass to it.

When the uterus and the ovaries have acquired a large size, and an unnatural weight, they displace other abdominal viscera, and compress the bladder, the rectum, and the large iliac vessels, so as to cause disturbances in digestion, constipation, incontinence of urine, and tumefactions in the lower extremities.

The action of similar causes, however trivial they may appear,

explains a multitude of pathological phenomena in a more satisfactory manner than the ingenious concourse of vital actions of metastases, or vague and obscure sympathies. It is principally into the theory of diseases of the heart that this last form of subtle explanations has been made to enter. For instance, it is constantly said, that such a person having been unfortunate, and subjected to severe and long protracted distress, felt his heart beat stronger than usual; that, in consequence of the influence of the *moral* on the *physique*, and when under the empire of distressing passions, the circulation becomes disturbed and retarded; the cardiac cavities dilate and become aneurismatic, &c. We thus limit ourselves to a vague reminiscence—founded solely on the sympathy of distant organs—without regard being paid to the material influence of neighbouring organs, which are in a direct and reciprocal commerce with each other. Is it not more probable, for example, that the obstacle presented by disease of the lung to the progress of the blood sent by the right ventricle into the pulmonary artery, may be a more frequent cause of dilatation of the ventricle, and one far more easy of comprehension, than a mental affection necessarily proceeding from the brain, or than the retrocession of a gouty or psoric affection? On the same day that I reasoned in this simple manner, I ran over the work of Corvisart, and was astonished to discover that the majority of the patients attacked with aneurism had previously suffered under pulmonary catarrh, and other affections of the tissue of the respiratory organs. It is presumable that, in the majority of these cases, the obstacle which a physical lesion of the lungs throws in the way of the pulmonary circulation, gradually occasions dilatation of the cavities of the right side, and this by a mechanism very readily conceivable, and which has the greatest analogy to the action of ossified valves, or of any other cause that prevents the ventricles of the heart from being wholly emptied before a fresh quantity of blood flows into them. Several authors have pointed out this cause of dilatation of the heart, without attaching to it the same importance as we, and without ranging it amongst the causes of aneurism. It had not escaped Senac.¹ Morgagni likewise cites some cases where dilatation seemed to him to be produced in a similar manner,² after pleurisy and pneumonia; and he adds, that the channels for the blood through the inflamed lungs being contracted, that fluid, by distending or irritating to excess the heart and its vessels, does violence to the parietes of the former, and to the intimate substance of the latter; and although, says he, the distension ought to be greater in the right cavities, because there is in the lungs an obstacle to the evacuation of those cavities, the veins must also be necessarily distended in the intimate substance of the left cavities, because the blood with which the right cavities are filled to excess is opposed to that which has also to return from the left side by the coronary vein.

After some other remarks on the greater or less force of resist-

¹ Traité du Cœur, liv. iv. chap. 8, No. 3.

² Epist. 21, No. 34.

ance of the parietes of the heart, that illustrious pathologist sums up by affirming, that there is nothing in the least astonishing in our finding sometimes, after severe or reiterated attacks of inflammation of the lungs, a dilatation either of the whole heart or of some of its parts, but especially of the right side.

M. Bégin, in an article in the *Journal Complémentaire des Sciences Médicales*, entitled "*Physiological and Pathological Reflections on Asthma*,"¹ has developed some considerations which belong to the subject we are now examining, and which we cite with pleasure.

"In order that the lung shall properly fulfil its functions, it must afford a ready and free passage to the blood. If the development of this organ be constantly cramped by any cause, the blood accumulating in the right cavities of the heart will surcharge them, and their fleshy parietes, redoubling their efforts to drive out the fluid, will become the seat of organic changes, *which will be owing* to the pathological condition of the lung. It is by this mechanism, that the constant exercise of the voice by resounding, or by hurrying beyond measure the movements of the thorax; that hard labour, by compelling the incessant exertion of great muscular force; that partial hepatisation of the lungs, by rendering a portion of their parenchyma impermeable; that chronic pleurisy, by giving occasion to a serous collection which compresses the organ;—it is, I say, by this mechanism that every act and every disease, which presents an obstacle to the course of the blood through the lungs, frequently occasions organic disease of the heart. If, now, we suppose the organs of respiration to remain for five, fifteen, or thirty years in the state of horrible constraint that characterises attacks of asthma, it will be easy to understand how this affection (seated in the lung) may give rise to the same lesions."

If any obstacle to the course of the blood through the lungs can cause that fluid to reflow into the right ventricle of the heart, and be an active cause of its dilatation—as we have established most clearly—it is no less certain, that excessive action of the hypertrophied ventricle may, by an inverse mechanism, drive the blood out of the ordinary channels of the circulation, and give place to sense of suffocation, pulmonary congestions, hæmoptysis, &c. This point of pathological anatomy and physiology is not only elucidative of the theory of spitting of blood, but must be esteemed one of the bases for the therapeutics of diseases of the heart and lungs. M. Barbier has, indeed, founded an ingenious indication of *materia medica* upon the state of hypertrophy of the central organ of the circulation.

Before proceeding farther, we may remark, *en passant*, that this point of organic medicine has the most intimate connection with that which forms the subject of the preceding section, the object of which is to show the influence of hypertrophy of the left

¹ Tom. v. p. 6.

ventricle upon cerebral congestions and extravasations of blood in the brain. There is, however, a difference in anatomical structure and position between the aorta and the pulmonary artery, which must occasion some little variation in the pathological phenomena. Thus, the curvature of the aorta at the arch diminishes the impulse of the blood, and is the cause of a shock, which accounts for the frequent aneurismal dilatations at that part of the vessel; in consequence of this anatomical arrangement, the column of blood must arrive less rapidly at the brain, which is besides much more distant from the centre of impulsion than the lung. The pulmonary artery, which is short and but little tortuous, resembles it in no respect as to its direction, and its normal force is in a ratio with the space through which it has to send the blood contained within it, and with the obstacles which it has to surmount.

The influence of hypertrophy of the right ventricle on the lungs, says M. Tixier, formerly *interne* of the hospital,¹ is, according to my experience, much greater than that of the left ventricle on the cerebral circulation. The blood, to arrive at the brain, has a long and tortuous course to run; the multiplicity of vessels that convey the blood to that viscus, the great curvatures, the successive divisions of those vessels, the change produced on the sigmoid valves in certain diseases, diminish the impulsion of the blood; the arteries, when they reach the base of the brain, anastomose with each other; . . the branches that arise from this central point produce other branches, and these again smaller ramifications, whose interlacing constitutes the pia mater before entering the encephalon. If we enquire—adds the author, farther on—what is the force of the aortic ventricle in the healthy state, and admit, with M. Poiseulle,² that the total static force, which moves the blood in an artery, is exactly in a direct ratio with the area of the circle of the artery, or in a direct ratio of the square of its diameter, it necessarily follows, that, the minute arteries which penetrate the cerebral pulp being infinitely small, the action of the heart must be almost at its minimum, &c. It must be remarked, however, that Bichat has properly observed, that the parietes of the vessels, when they have attained the interior of the brain, lose somewhat of their thickness and resistance, which must increase the effects of the impulsive force of the left ventricle.

The contractile force of the right ventricle, whatever may be its true measure, appears to us, then, very great, relative to the short space over which it has to send the blood; consequently it seems certain, that, when this force is augmented by a state of hypertrophy, it may readily cause rupture in the last vascular divisions, and so produce hemorrhage. A long time ago, we instituted several experiments which demonstrate how little force is needed

¹ Considérations sur l'hémoptysie symptomatique de l'hypertrophie du ventriculaire droit. Thèse, 1834 (Paris).

² Thèse inaugurale.

in a column of fluid to occasion the ruptures of which we are speaking: simple injections made into the pulmonary artery, with an ordinary injecting syringe, produced extravasation of the matter of the injection into the parenchyma of the lungs, when there was no communication between the capillary blood-vessels and the cells of the lungs. A pupil of the Hospital Necker (M. Leroi) has repeated this experiment, and obtained the same results. M. Texier, referred to above, who unhesitatingly admits that hæmoptysis produced by hypertrophy of the right ventricle must operate in the same manner (by rupture or fissure of the extremities of the vessels), has also made experiments, with the view of rendering this theoretical topic more demonstrative. We were desirous, says he, of ascertaining if we could imitate mechanically the action of the right ventricle on the blood which traverses the pulmonary artery. We made some experiments on human lungs, which were chosen sound, without apparent disease at least; and the following were the results. We endeavoured to cause the matter of the injection, which consisted of spirit varnish, coloured red by vermilion, to pass into the pulmonary veins; in this we succeeded, and without any great degree of pressure. We endeavoured, by means of a lens, to detect whether the fluid had entered the ultimate bronchial ramifications, but could perceive no trace of it. We then varied the experiment, by tying the pulmonary veins; and succeeded, by a greater degree of pressure, in forcing the injection not only into the veins, but also into the bronchial tubes. How can this communication be explained, except by admitting a laceration of the very thin septa which separate the vessels from the air cells? The author repeated those experiments on the lungs of children several days and several months old. He subsequently endeavoured to produce in the lung an artificial apoplexy, with the matter of ordinary injection coloured red. After having tied the bronchi and the pulmonary veins as near as possible to the lung, he sent the injection in with force, and did not dissect the lungs till ten hours afterwards. He then found, in the interior of those viscera, red, circumscribed, hard *nuclei* (*noyaux*), formed by the injected matter, which had evidently torn the pulmonary parenchyma. These results are strikingly identical with those which we obtained.

From the anatomical and physiological considerations into which we have just entered, it can readily be discerned what must be the influence exerted by the right ventricle of the heart on the lungs, and on the function of respiration, when it has acquired a very large size, or is affected with hypertrophy, which has doubled or tripled its force and contractile energy.

Persons labouring under this hypertrophy, with or without dilatation, have commonly palpitations, often caused, from the commencement, by an obstacle in the lung; the pulsations of their hearts are stronger and more marked on the right than on the left side; the pulse is frequent, without any great (*trop*) irregularity. The face and lips are blue or livid, at times at least; the jugular

veins are constantly gorged with blood, and the seat of a pulsatory reflux, which has been termed the "venous pulse;" the movement of the hypertrophied or dilated auricle seems to ascend, and, in many cases, its systole and diastole can be distinguished above the clavicle, in the interval between the two *scaleni* muscles. The respiration is short and difficult, and when there is, at the same time, an obstacle to the circulation and to hæmotosis, the blood passes into the pulmonary veins with difficulty and in less quantity, is insufficiently oxygenised, and excites the brain imperfectly; whence, in serious cases, stupor, torpor, and signs of asphyxia to a greater or less amount, of which they frequently die who are affected with aneurism of the right ventricle. We may add to these, towards the end of life, signs of œdema and infiltration, more common and more marked than in hypertrophy and aneurism of the left cavities.

I had very frequently been struck with the fact that persons who spit blood frequently have, at the same time, palpitations of the heart. According to my custom, without any assistance from reading, I endeavored to establish a coincidence and subordination between these two phenomena, when I was called to see a leather-dresser, in Rue Mouffetard, who had suffered for several years with serious hæmoptysis. This man, who was of a vigorous constitution, had no symptom of phthisis pulmonalis, but he was incommoded by palpitations, which never failed to be doubled in violence at the time of the spitting of blood; these were much stronger on the right than on the left side, and it became evident to several physicians—amongst whom was my friend M. Rayer, physician to La Charité (at that time my colleague in the fourth dispensary)—that the patient was labouring under active aneurism with hypertrophy of the right ventricle; and to this hypertrophy we referred, by common consent, the frequent attacks of hæmoptysis, which were not attended with the symptoms proper to organic lesions of the left ventricle, as vertigo, hardness and irregularity of pulse, coldness of the extremities, unequal distribution of the blood, &c. Some other similar cases which occurred to me, and in which I had no opportunity for verifying the diagnosis by dissection, involved me in so much uncertainty that I determined on investigating the subject. I first referred to Morgagni, as to a fruitful mine scarcely ever explored in vain. I found, in his seventeenth letter, two facts which commenced the demonstration of the inductions at which I had already arrived. In the first, he speaks of a mendicant, aged sixty-five years, affected for several years with a disease of the heart, which is imperfectly described, who was brought to the hospital, where he repeatedly spat blood mixed with mucus—sputa which the author compared to gelatine. He died about the fortieth day after his admission. On opening the body—which was done in presence of Albertini—a pound and a half of serous fluid was found in the pericardium, and the heart was equal in size to that of an ox. The cavity of the right ventricle had its ordinary capacity, but its parietes were very thick. The cavity of the left ventricle, on the

contrary, was so large that it could have contained within it another heart of the ordinary size.¹

The second case occurred to a mattress-maker, fifty years old, whose respiration was constantly difficult. This man was sometimes taken with oppression in the præcordial region, and constrained respiration, which were followed, from time to time, by acute pain in the loins; the arteries of the neck beat forcibly, and, for some days before death, there was spitting of blood.

On opening the body, an effusion of bloody fluid was found in the chest. The inferior part of the left lung, and one lobe of the right, were blackish, owing to an effusion of blood into their substance. The heart was augmented in size; the origin of the aorta was aneurismal, and lined with osseous scales in its dilated portion. Morgagni, in his reflections, refers the dilatation of the aorta to the too great force with which the enlarged heart sent the blood into that vessel; and he subsequently adds, as these lesions may be referred to the too great force of the left ventricle of the heart, so may we refer to the too great force of the right ventricle the cause why the blood, after having ultimately ruptured its vessels, spread itself with so much rapidity into the substance of the lungs, that is, into its vesicles (whence it issued with the sputa), that these viscera could not be very sound or very firm, on account of the flue constantly floating in the air, &c.²

A nearly similar opinion as to the different influence of the two ventricles on the pulmonary and cerebral circulations is found in the work of Bertin³ when treating of hypertrophy of the right ventricle. We communicated, says the author, to Corvisart a case of which we have kept a copy. We recollect that, in this case, hypertrophy of the right ventricle terminated in a *coup de sang* in the lungs, by a kind of pulmonary apoplexy. The hypertrophied right ventricle, he adds, had exerted on the pulmonary artery, and on the lungs, an influence similar to that which hypertrophy of the left ventricle exerts on the brain in the production of certain diseases of that organ.

In addition to the fact mentioned by Bertin, we may relate one of older date, inserted in the *Bibliothèque Médicale*.⁴ It presents, moreover, a case of the excellent effect produced by the water of the lauro-cerasus in the treatment of palpitations of the heart. A soldier named Seggi, a conscript of 1807, of bilioso-sanguine temperament, had suffered for several years with pulsations of the heart of extraordinary force, which prevented him from undertaking any fatiguing exertion. The necessity of leaving his family to proceed to the army, greatly increased the symptoms, and aggravated the disease. On the 26th of March, 1807, he was sent to the military hospital of Genoa. The palpitations of the heart were so strong that they could be readily perceived through the clothes. Hæmoptysis was not long in manifesting itself, and the lower

¹ Letter xvii. No. 21.

² Idem, No. 24.

³ Traité des Maladies du Cœur, p. 318. ⁴ Tom. xix. p. 232, for 1808.

extremities soon began to be tumefied. The pulse was hard and frequent; the patient complained of heavy pain in the right portion of the thorax, a pain which was rendered almost insupportable by pressure; sleep was disturbed, and the respiration was difficult and fatiguing. One of the surgeons of the hospital bled him twice, but, as the palpitations continued strong and frequent, professor Mojon proposed trying the *anti-stimulant* virtue of the distilled water of the cherry-laurel. He began its administration in the dose of twenty drops a day, in about three pints of barley water, afterwards augmenting the dose each day until he carried it to fifty drops. The patient followed this plan for a month. His pulse began to be less frequent and resisting; the hæmoptysis wholly ceased; the palpitations diminished so much that he acknowledged they were no longer troublesome, and, in short, his strength increased to such an extent that, on the 20th of July, he was discharged from the military hospital in a fit state for undergoing military fatigue.

Although this case is incomplete, the palpitations, the hæmoptysis, the pain of the right side, leave no doubt as to the existence of lesion of the right ventricle of the heart; and what other lesion of that organ could have been dispelled under the influence of bleeding and the water of cherry-laurel?

To this case, I shall add the following, reported during my attendance at the Hospital Necker, and which, it seems to me, leaves no doubt as to the part played by hypertrophy of the right ventricle in aneurism of the heart, and as to its almost direct action on the capillary system of the lungs.

CASE I.

Hypertrophy of the right ventricle of the heart, with dilatation—Hæmoptysis—Pulmonary apoplexy—Death.

An ostler, aged forty-eight years, of strong constitution and sanguine temperament, with very short neck, although tall, was attacked, about six years ago, after pneumonia of the left side, with very strong and oft repeated palpitations of the heart. Progression became gradually more and more distressing by the oppression felt, especially on ascending. The upper limb and face were not long in becoming œdematous. The urine diminished sensibly, and from time to time he spat blood in some quantity; after having kept his bed for several months, he entered the hospital on the 16th of January, 1834.

At that time, he complained of severe pain in the left side. His face was livid and infiltrated, as well as his upper extremities; the jugular veins presented pulsations like those of the arteries; the respiration was constrained; the cough frequent; the expectoration somewhat copious; the pulsations of the heart very strong and extensive, especially on the right side; pulse frequent, hard, and irregular. In almost every part of the chest the respiratory murmur was heard, mixed with the mucous *râle* or rhonchus; he could not lie on either side; was compelled to remain on his back, &c.

Up to the 27th he was bled three times from the arm, and leeches were twice applied, but with scarcely any success. On the 29th, in the evening, a violent paroxysm of suffocation occurred; he lost his power of utterance; the pulse and the pulsations of the heart became tumultuous; the countenance was violet coloured, and the mouth covered with froth, as in asphyxia. He was bled twice; leeches with cups were applied over the region of the heart; but these means did not prevent coma, which carried him off on the 2d of February.

Necroscopy twenty-four hours after death.—The brain and its membranes exhibited nothing remarkable. The ventricle contained only a small quantity of fluid. The pericardium also enclosed about two ounces of citron-coloured fluid; the left cavities of the heart were normal; those of the right side had attained great development and an enormous capacity; the thickness of their parietes was doubled. These cavities contained, however, but a small quantity of black, liquid blood, and their apertures were not the seat of any organic change. The right lung was healthy, although slightly engorged at its posterior part. The left adhered to the inner surface of the thorax in nearly its whole extent; the pleura of that side was almost entirely transformed into false membranes of long standing. All the inferior lobe of this lung was of a reddish-black colour; its tissue was compact, and, when cut in slices, it presented the same colour; on scraping it with the scalpel semi-coagulated blood escaped. The parenchyma of the lungs was moreover the seat of induration, and was not crepitant. The vena cava ascendens and the pulmonary artery were gorged with black, coagulated blood. The organs of digestion and the peritoneum were in a normal state.

CASE II.

Hypertrophy of the right ventricle of the heart—Hæmoptysis—Cessation of symptoms after bleeding and fifteen days' residence in the hospital.

A female pasteboard-maker, thirty-eight years of age, of strong constitution and bilioso-sanguine temperament, mother of several children, had suffered for some time under palpitation, and constraint in respiration. These symptoms, which she bore tolerably well, increased sensibly on the first days of the month of May. She had violent palpitations, great difficulty of breathing, intense headache, paroxysms of coughing, and an unaccountable feeling of heat beneath the sternum. The expectoration, which was pretty copious, was, in a great measure, composed of black, frothy blood.

She continued in this manner to spit blood copiously for several days, without having any symptoms of inflammation about the lungs. She merely felt slight irritation in the throat; complained of headache, general indisposition, and difficulty of breathing. On the 6th of May, 1833, she determined on entering the hospital.

h On the 7th, at the morning visit, the face was red; skin hot;

sputa copious, bloody, frothy, and mixed with bronchial mucus. Auscultation indicated no lesion in the lungs, but it detected, in the præcordial region, strong and perceptible pulsations of the heart, which form the diagnosis of hypertrophy of the right ventricle, without obstacle at the auriculo-ventricular apertures, and without any anormal noise (*bruit*).

She was bled to four cups; and the syrup of asparagus was prescribed, in the dose of two ounces, in an ordinary mixture. Absolute diet.

At the end of a few days, the pain in the head, the general indisposition, and the hæmoptysis, had greatly diminished; the respiration was executed more easily; and the pulsations of the heart had less repulsive force. The same means were continued; to which were added strongly *sinapised* pediluvia. Two broths (*bouillons*).

Some days afterwards, the blood entirely disappeared from the sputa; the other symptoms likewise ceased, and solid food was allowed her. The improvement continuing to be progressive, she left the hospital cured, after having been there about a fortnight.

CASE III.

Hypertrophy of the right ventricle and auricle, with dilatation, and with enlargement of the auriculo-ventricular orifice of the same side—Death—Hypertrophy of the right auricle and ventricle.

A labouring man, aged 51 years, of lymphatic temperament, and tolerably strong constitution, had enjoyed good health until the age of thirty-five, when he received a blow on the chest. After this accident, for which he was treated at the Hôtel-Dieu of Paris, he had copious hæmoptysis, palpitation of the heart, difficulty of breathing, cough, &c. The legs became alternately infiltrated, which complicated the primary condition in an unfortunate manner.

On the 26th of February, 1833, he entered the hospital.

On the 27th, his case presented the following characters:—face and lips of a violent hue; eyes prominent; sclerotica bluish; respiration difficult, and requiring the head to be raised; cough frequent; expectoration mucous, copious, and mixed with blood; pulse regular, but hard and frequent; considerable pain in the præcordial region, towards the right side; respiration vesicular, with mucous *râle* in large bubbles (*à grosses bulles*); pulsation of the heart very extensive, especially low down in the right side; external jugular veins tumid and pulsatile.

The diagnosis was—*dilatation, with hypertrophy of the right ventricle of the heart*. Bleeding at the arm was prescribed; *sinapised* pediluvia; an infusion of the *tilia*;¹ a mucilaginous

¹ The *tilia Europæa*, lime or linden tree (Fr. *tilleul*), is not officinal with us, or in Great Britain. It is a favourite antispasmodic and diaphoretic on the continent of Europe. The infusion and distilled water are officinal in France; the former is made by pouring two pints of boiling water on two drams of the flowers of the *tilia*.—R. D.

looch, with ethereal tincture of digitalis (fifteen drops); absolute diet.

On the following days, the face was more livid; the difficulty of breathing was marked; and the præcordial pain more intense. Fifteen leeches were directed to the region of the heart, and the same means were continued; absolute diet.

The patient experienced some paroxysms of oppression, which required the application of sinapisms, and a small bleeding at the arm; these afforded temporary relief. He was also benefited by a mixture, composed of an ounce of the syrup of the *rhamnus catharticus*, and as much castor oil. But, after transient remissions, the unpleasant symptoms increased with fresh intensity, and he died on the 22d of March.

Necroscopy twenty-four hours after death.—The cavities of the *pleura* contained no serous fluid; both lungs were crepitant and slightly emphysematous. The pericardium contained about three ounces of citron-coloured fluid, although the serous surface exhibited no lesion. The heart was very large; the right auricle considerably dilated, with thickness of its parietes; it contained a large quantity of blood; the auriculo-ventricular opening was excessively large, and occupied almost the whole extent of the septum, of which there remained but little trace; the tricuspid valves were very thin, and could not close the opening of communication between the auricle and ventricle on the right side; the ventricle was likewise dilated, and greatly hypertrophied. It contained much black blood in clots. The left auricle and ventricle were in a normal state.

The stomach and intestines presented nothing remarkable; the liver was rather bulky, and the other abdominal viscera were healthy.

The head was not opened; no symptom having indicated lesion of the organs contained in it.

CASE IV.

Hypertrophy of the right ventricle of the heart—Hæmoptysis—Cessation of the symptoms after several bleedings, applications of leeches with cupping-glasses, and seven-teen days' residence in the hospital.

A washerwoman, aged forty years, of sanguine temperament and strong constitution, who had been subject, during her youth, to nasal hemorrhage, had enjoyed good health for a considerable time, when, in the first days of April, she felt general indisposition, cephalalgia, sense of suffocation, &c.

Some time afterwards, on the night of the 18th or 19th of April, she ejected a large quantity of blood; and the hemorrhage recurring, she came for assistance to the central office for admission into the hospital. She was bled from the arm, which relieved her greatly, and stopped the hæmoptysis—as, according to all probability, it was one. Two days afterwards, however, it recurred, which induced her to enter the hospital on the 25th of April.

At that time, she expectorated a frothy blood, mixed with a little bronchial mucus; the pulse was by no means frequent, but hard;

and the respiration not much affected. She had a troublesome cough, which was incessantly caused by irritation in the larynx. (A pectoral drink; *sinapised* pediluvia.)

On the 29th, the expectoration of blood was still very copious; percussion and auscultation afforded no evidence of lesion of the lungs; the pulsations of the heart were, on the contrary, very extensive, intermittent, irregular, and more strongly felt in the right than in the left side.

Under the upper part of the sternum, the distended jugular veins were the seat of pulsations, similar to those of the arteries. The pulse was nearly in the natural state, and presented no *irregularity*; the face was red, and the eyes injected.

Blood-letting was practised to three cups; a pectoral emulsive *tisane* was allowed for drink; and a mucilaginous linctus, with the syrup of the *symphytum officinale*.¹ (Absolute diet.)

On the 27th, the improvement was sensible, and the hæmoptysis much diminished; but in the night of the 28th and 29th, there was a copious expectoration of black blood; increase of the fits of coughing, preceded by acute irritation of the throat, &c. (Bleeding to three cups; same drink.)

This kind of recandescency disappeared on the following day, and she asked for food: she was put upon the use of the syrup of asparagus shoots, and of *sinapised* pediluvia; a sharp pain in the præcordial region, however, required the application of fifteen leeches, and three cups afterwards.

The hæmoptysis continued to diminish; auscultation was still negative as regarded the respiration; as, however, the loss of blood had been considerable, we endeavoured to arrest it entirely by a decoction of ratanhy root, given in the form of drink, along with the syrup of asparagus, in the dose of two ounces.

On the 4th of May, she had a fresh attack of hæmoptysis, preceded by an alarming sense of suffocation. She was again bled to four cups, and two sinapisms were applied to the legs. This attack was the last; from this time, the symptoms gradually disappeared, and on the 12th of May, when she left the hospital, the cure appeared to be complete.

To these four cases, we may add two others, published by M. Texier, in his inaugural dissertation.

CASE V.

Simple hypertrophy of the right ventricle, with slight purring-of-cat sound (*frémissement cataire*)—Cure.

Mary Jane Milleroux, aged twenty-six years, market-woman, of good constitution and lymphatic temperament, was admitted into

¹ The *symphytum officinale* (Fr. *grande consoude*) is officinal in almost all the pharmacopœias of continental Europe—the Austrian, Amsterdam, Batavian, Belgic, Brunswick, Spanish, Parisian, Ferraran, Genevese, Russian, Saxon, Wirtemberg, &c. The root contains much mucilage, with gallic acid. It is, therefore, gently astringent, and consequently employed in hæmoptysis, diarrhœa, &c.—*R. D.*

the Hôtel-Dieu, on the 19th of April, 1830, complaining of great oppression, palpitations, and copious spitting of blood. She had two children; but her catamenia had almost always been irregular, although they had been established from the age of fifteen. The pulsations of the heart had existed for several years; and for three years, the oppression and panting, when she walked more than common, had greatly augmented. From time to time, she spat some blackish, frothy, and very coagulable blood. These symptoms were relieved by rest, and by acidulous drinks, prescribed by an herborist; at length they returned with greater intensity at the beginning of April, which compelled her to give up work, and enter the hospital under the care of M. Husson.

The next day, she had the following symptoms. The respiration was heard well over every part of the chest. The ear, applied to the region of the heart, distinguished very strong pulsations, and manifest *frémissement cataire* (the purring-of-cat sound). These pulsations were heard beneath the sternum, and on the right side of the chest, accompanied, besides, by no peculiar sound. Nothing similar existed on the left side. The hand, placed on the præcordial region, perceived strong contractions to the right, as well as the *frémissement*, of which we have spoken. The pulse was very regular; the face slightly puffed; and the lips and sclerotica bluish.

A few moments after her admission, she had a violent fit of coughing, followed by a copious expectoration of blood. This expectoration diminished the oppression and the panting, which she had experienced for several days, and she slept a part of the night. (Bleeding to four cups; gum water, with syrup of the *symphytum officinale*; *sinapised* pediluvia, &c.; two broths, *bouillons*.)

The next day, the improvement was not very manifest; the pulse was always regular; oppression and palpitations considerable. (Another bleeding; same drink; same regimen.) On the 22d, she did not feel relieved; the pulse was weaker; the *frémissement cataire* had disappeared; the hæmoptysis had ceased; the respiration was more free; and she asked for food. On the following days, the improvement from the bleeding continued; the pulsations of the heart were less strong; she got up, and remained up, without experiencing the least fatigue, or constraint in breathing. On the 8th of May, she left the hospital. She was recommended to be occasionally bled from the arm.

CASE VI.

Hypertrophy, with dilatation of the right ventricle of the heart, and of the auricle of the same side—Cure.

Briant, aged thirty-two years, terrace maker, of lymphatic temperament, feeble health, although of good constitution, and of somewhat considerable *embonpoint*, was received into the Hôtel-Dieu on the 30th of April, 1830. He had been compelled to leave off work, three weeks before, on account of pain which he had in the

præcordial region, and of frequent and violent palpitations, which augmented daily. Several times, in the middle of the day, he was taken with copious spitting of blood, which almost always relieved him. His legs were slightly œdematous; he had no appetite, and slept badly, not being able to keep the horizontal posture when in bed. When M. Husson saw him, he had the following symptoms. Face slightly puffed; eyes prominent, fixed, and watery; sclerotica and lips bluish; the right hand œdematous; the lower limbs much infiltrated, as high as the knee-joint; abdomen moderately tense, and not containing any effused fluid; respiration constrained and panting, especially during expiration; cough not very frequent, but it increased the præcordial pain. No expectoration; jugular veins dilated, and exhibiting constant pulsations; pulse strong, but regular, and by no means frequent; skin in its natural state, rather cold than otherwise.

Auscultation showed the respiration to be natural over the whole chest. When the ear was applied to the region of the heart, much louder pulsations were heard on the right side of the sternum, inferiorly, than on the left, and beneath the clavicle. No other sound was particularly heard, except those of the contractions of the ventricle and auricle. (Infusion of the *tilia* and orange leaves; mucilaginous julep, with nitre; *sinapised* pediluvia; three broths, *trois bouillons*.)

On the following day, the 5th, he exhibited his spitting vessel full of blood, which he had expectorated in the night, after a paroxysm of suffocation, which continued not less than an hour. This expectoration had relieved him; the pulse was stronger than on the preceding evening, but the oppression was still considerable: (bleeding to four cups; barley; the *triticum repens*¹ with nitre; a mixture with tincture of digitalis, fifteen drops.)

He was relieved by the blood-letting; the same treatment was continued. During the day of the 9th, an acute pain was felt at the middle of the sternum, which was followed by copious spitting of blood: (fifteen leeches to the region of the heart; *sinapised pediluvia*.) The pain disappeared, but the spitting of blood continued: the pulse was still strong; the pulsations of the heart tumultuous: (another bleeding to four cups; drink with nitre; a mixture containing twenty drops of cherry laurel water; diet.) The expectoration of blood ceased, and the patient felt much better; the urine flowed copiously: (same treatment.) The improvement continued; the infiltration of the limbs disappeared, and sleep and appetite returned. He was allowed food. From that time he had no recurrence of the spitting of blood, and was discharged from the hospital, cured, after a month's residence therein.

¹ The *triticum repens*, (Fr. *chiendent*), which is in almost all the pharmacopœias of continental Europe, is not used in this country or in Great Britain. The roots furnish a little muco-saccharine matter, which renders a tisane made of them slightly demulcent.—R. D.

METHODICAL COMPRESSION.

RESEARCHES AND OBSERVATIONS ON THE EMPLOYMENT OF METHODICAL COMPRESSION IN DROPSIES, AND PARTICULARLY IN ASCITES.

Compression is an agent by means of which a number of different effects may be induced, when it is exerted in different ways and on different parts of the body. It may arrest the course of blood to a part, prevent the access of other animal fluids, or produce its atrophy and death. In this way must doubtless be explained the effect of strong pressure, which has been long employed to destroy tumours; vegetations which incessantly sprout afresh, and even cancerous masses; and, *a fortiori*, the effect of circular compression exerted on a tumour attached by a pedicle. Regulated compression, employed with another view, has often analogous effects. Who is unaware that a circular bandage, applied for some time around a limb, diminishes its size, and may even cause it to become atrophied, in an entirely mechanical manner? Again, the same compression, noxious in the case just mentioned, has often been employed to repress excessive nutrition of a part; to diminish, for example, the exuberance of cellular tissue in the elephantiasis of the Arabians: it has even been invoked, imprudently perhaps, to arrest the progress of certain cutaneous phlegmasiæ, which had extended to the subjacent cellular tissue.¹ Compression has likewise been used to prevent inordinate development of bony parietes, as of the skull, in certain cases of hydrocephalus. We shall hereafter make a few comments on this plan, which has been followed by the English and the Americans. In this last case, the pressure acts by opposing an external resistance to the internal force that distends the bones of the cranium; it is simply one mechanical force opposed to another, and which, *cæteris paribus*, has the greater chance of success, inasmuch as it can be augmented at pleasure—whilst that opposed to it is ever the same. The majority of the effects of external compression may be produced internally by the development of certain tumours in the splanchnic cavities; the displacement of certain bones; the disorganisation and augmentation in size of the viscera, whence arises a multitude of morbid symptoms of great importance, and which often play a part but little understood, and almost always imperfectly appreciated, in the production of many internal diseases.

The idea of employing compression in œdema, infiltrations, and hypersarcosis of the limbs, is very old, as Rhazes used it in elephantiasis after having excited resolution by the aid of emetics and cathartics.² It is an agency invoked in practical medicine and surgery. The following are two examples.

¹ See the Archives Générales de Médecine. Tom. ii. 192; t. xiii. 223; and t. xvii. Thesis on the utility of compression in idiopathic inflammation of the skin, by Brétonneau, (1815.)

² Phazii cum Serapîs Averroch. Edit. Gerg. Frank. 1533.

CASE I.

Fifty-two years old—Suppression of the catamenia for four months—Intumescence and œdema of the right foot, leg, and thigh—Bathing—Bleeding—Fumigations—Scarification—Methodical compression over the whole limb—Cure after six months' treatment.

A woman, fifty-two years old, of considerable *embonpoint*, constantly enjoying good health, but irregular in her catamenia for the last four months, perceived, about two months ago, that the right foot and leg were swollen; and soon afterwards she could scarcely walk. In less than fifteen days the swelling reached the thigh; baths were prescribed, and a blister was applied to the calf of the leg, after it had been frequently washed with vinegar. On the 12th of April, some days after her entrance into the Hospital Saint-Antoine, the affected leg, thigh and foot were tumefied; the skin red, tense, and shining, and their movements difficult: there was neither pain nor engorgement in the course of the vessels. Pressure with the fingers left a fugitive depression. The ganglions in the groin presented nothing particular; the abdomen was every where painful; the stomach healthy; the chest sonorous, and the pulsations of the heart regular. When carefully measured, the diseased limb was larger than the other; at the knee it was eight lines more; and in the leg and thigh, eighteen or twenty lines.

M. Rayer, physician to the ward, had her bled, and directed emollient fomentations to the limb.

On the following days, the swellings increased; she complained of pain following the course of the vessels, and could not sleep; absolute rest was prescribed, and the emollient fomentations were continued.

On the 15th, scarifications were made in different parts of the thigh, and on the back of the foot; a little blood and serous fluid escaped in places where the œdema was most marked.

Twelve days afterwards (on the 27th), the scarifications being healed, methodical compression was commenced from the extremity of the foot to the middle of the thigh by means of a roller.

For twenty days, the compression caused no unpleasant effect, and the limb had evidently diminished in size.

On the 21st of May, she complained of indisposition, cephalalgia, and prickings; and in certain parts of the body there was a small eruption of red pimples. She was bled to three cups; the blood was buffy, but the clot swam in the midst of a large quantity of serum. The bleeding was repeated, fifteen days afterwards, for nearly similar symptoms; the limb continued to diminish in size, but it was harder, and the skin was more tense and firm. Compression was used over the whole of the diseased limb. Colic, followed by slight diarrhœa, supervened, which had no noxious effect on the treatment; baths and emollient clysters controlled this new symptom; the limb continued to diminish in size under the influence of the compression. She began to walk about, during the first days of July, and left the hospital on the 19th of the same

month, there being only an augmentation of four lines in the circumference of the lower part of the diseased limb, above the ankle, and a slight degree of firmness in the subcutaneous cellular tissue.

CASE II.

Twenty-five years of age—Intumescence, pain and œdema of the left lower extremity three days after accouchement—Compression with a bandage, and afterwards with a *cuissard*—Cure at the end of fifty-five days.

Another female, twenty-five years of age, having arisen imprudently the fourth day after her third accouchement, was attacked with pain in the direction of the vessels, and numbness in the left lower extremity, which soon began to swell; she continued to walk about, until acute suffering in the joints compelled her to rest; the skin was not red, but it was œdematous, and retained the impression of the fingers: blisters and a roller to the affected limb had already somewhat diminished the œdema, when she was received into the Hospital Saint-Antoine, on the 11th of August, 1830.

At that time the left lower limb, when accurately measured, was of greater circumference than the right—at the calf an inch and a half, and two inches and a half at the middle of the thigh. The skin had the ordinary colour, was not painful on pressure, and did not retain the impression of the fingers. The course of the vessels was in no wise painful, nor were the joints. Absolute rest; compression with a roller from the foot to the top of the thigh were recommended.

On the 15th of September, the limb was measured after the compression had been continued, without interruption, for twenty-five days; the size of the lower part of the leg was the same; and there was not more than six lines difference between the two calves and the two knees. At the lower part of the thigh, and five or six fingers breadth above the knee, there was a considerable difference between the limbs; there was, moreover, a hard and resisting engorgement, which was combated by a roller and graduated compression.

At a later period, a leather *cuissard*, or laced stocking for the thigh, lacing on the outside, was applied, to exert a more equal and uniform compression, which completed the cure. She appeared to be perfectly well on the 5th of October.

The use of compression in dropsies of the splanchnic cavities, without discharging the fluid, is not of distant date; and it is to the English—as it is well known—that we are indebted for this new therapeutical resource in a disease so rebellious against the efforts of art. Monro, however, who passes for one of the first that employed it, used it only as a precaution against the lipothymia, which, he conceived, must result from the sudden return of the blood into the vascular system of the abdomen, immediately after paracentesis, and the removal of a large quantity of serous fluid.

A physician of the Hôtel-Dieu (M. Recamier) thought better of this mechanical process, believing it adapted for effecting a radical cure, and the work which he has published attests that he has extended its employment to cases still more serious than those of abdominal dropsy. Without enquiring, in this place, whether, as has been affirmed, our *confrère* first discovered the curative action of compression in ascites, we shall see, that, for fifteen years, another physician of the Hôtel-Dieu had employed it successfully.

CASE III.

Eighteen years of age—Ascites—Diuretic drinks—Leeches—Digitalis—Methodical compression of the abdomen—Cure in a very few days.

In 1824, M. Godelle, of Soissons, published a case in the *Bibliothèque Médicale*,¹ of which the following is an extract :

A cordwainer, eighteen years of age, of weak and sickly constitution, was received into the Hôtel-Dieu, of Soissons, on the 5th of July, for different symptoms, such as pains in the stomach, abdomen, diarrhœa, &c. On his admission he complained, moreover, of dry and burning heat; the pulse was small, contracted, and quick; the urine scanty and red; and obscure fluctuation was detected in the abdomen. Leeches were directed to the epigastrium and the hypochondria; mucilaginous drinks with nitre, were prescribed; and oily liniments and emollient fomentations to the abdomen, with a greater allowance of food. These means, with some variation, were continued for a fortnight, with the exception of the leeches, which were only applied twice. The effusion did not diminish; the patient went from the hospital, but returned a fortnight afterwards. He had then a dry, frequent cough; the abdomen was tense, tumid and painful; the urine scanty, and red; the skin dry; the pulse small and quick; and he had diarrhœa. Recourse was again had to the oily embrocations and mucilaginous drinks, to which was added the use of digitalis in a small dose, but it was soon rejected: the size of the abdomen speedily increased so much as to cramp the respiration considerably, and to threaten suffocation.

It was then that M. Godelle resolved to employ compression. He first applied a bandage to the body, which, instead of augmenting the dyspnœa, rendered the breathing more easy. This first bandage, which was soon displaced, was subsequently replaced by a large cincture, laced like a corset, which embraced the abdomen, and could be relaxed or tightened at pleasure. In five days, the abdomen was restored to its ordinary size, and the effused fluid had disappeared. In proportion as the fluctuation became less sensible, the cincture was diminished by transverse reefs or folds, which still enabled it to exert energetic pressure. At the same time he was ordered internally a few grains of digitalis in powder, to favour the absorption of the effused fluid. The publication of this

¹ Nouvelle Bibliothèque Médicale. Sept. 1824.

case reminded me¹ that whilst I was *élève interne* at the Hôtel-Dieu, in the wards under the direction of M. Husson, that gentleman had occasionally recourse, and successfully, to compression in ascites. Having consulted my notes I found the following case in them.

CASE IV.

Age, twenty-one years—Ascites of six months' duration—Diuretic drinks (squill, digitalis)—Drastic cathartics—Puncture—Methodical compression—Cure at the end of a fortnight.

Mary Ann Mattan, aged twenty-one years, of sanguine temperament, habitually enjoying good health, and regular in her menstruation since the age of seventeen, although the flow has not been copious, had never been sick before the present occasion. About six months ago, dwelling in a very damp street, she observed that the abdomen gradually began to swell, but without any pain. At the expiration of three months, the abdominal distension rendered the breathing difficult; the appetite ceased, and she was unable to sleep, &c. She was as yet ignorant that she was dropsical. When she entered the Hôtel-Dieu, on the 23d of January, 1815, she had lost much of her *embonpoint*, yet her complexion was florid; the abdomen was very much distended; pressure caused no pain, and percussion denoted evident fluctuation. The most attentive examination gave no reason for the presumption that there was any engorgement in the abdominal viscera.

Recourse was had, in the first instance, to aperient drinks; to the use of active diuretics, as the squill and digitalis; and afterwards drastic cathartics were prescribed. The urine became more copious: other symptoms of the disease likewise yielded, but the improvement was transient. The effusion subsequently increased inordinately; the respiration became so difficult that paracentesis appeared necessary. By means of this operation a considerable quantity of transparent colourless fluid was withdrawn from the abdomen; after which, when pressed with care, the abdomen presented no engorged or painful point. After the puncturation, the resin of jalap, combined with nitre, in a purgative dose, was prescribed; the urine became more copious, but this did not prevent the recurrence of the ascites; and soon a manifest fluctuation showed that a fresh quantity of serum had been effused into the cavity of the peritoneum.

It was now determined to employ methodical compression of the abdomen by means of a bandage laced like a corset, which embraced the whole of the abdominal parietes. This bandage could be tightened at pleasure, as the abdomen diminished in size. The compression was methodically exerted from the base of the thorax to the pelvis, consequently every part experienced equal pressure. It was not long before the urine flowed more copiously, and exhi-

¹ The first idea of the present work was entertained in the year 1824; I commenced writing it at that period, but it has been deferred until the present time, for reasons which are of but little moment to be known.

bited, at the same time, a favourable change in its colour and density. The abdomen gradually diminished in size, and, at the end of a month, every sign of fluctuation had disappeared. Fifteen days afterwards she left the hospital entirely cured, having regained her freshness and habitual colour.

CASE V.

Sixty years of age—Epigastric pain—Vomiting—Leeches—Ascites—Methodical compression of the abdomen—Cure at the end of a month.

The recollection of the case just detailed, and that of M. Godelle, suggested to me the employment of the same means in a patient of the fourth dispensary, named Clapier, who lived in Rue Saint Victor. This man was about sixty years old; he was of a pale colour; the skin flaccid and disposed to infiltration; and he suffered pain in the epigastrium; he digested with difficulty, and occasionally rejected his food. I fancied that I could detect engorgement and induration in the region of the stomach. Leeches were applied to it, and afterwards a blister. He believed himself cured, and left the dispensary. Some time afterwards¹ he came to consult me. I then discovered manifest fluctuation, denoting the effusion of a considerable quantity of serous fluid into the cavity of the peritoneum. After again having recourse to the application of leeches, which appeared to me to be indicated, and having used diuretic drinks, without deriving much advantage from them, I had recourse to methodical and graduated compression of the abdomen, exerted by a laced bandage from the base of the chest to the hips. The pressure was skilfully graduated, and maintained constantly, night and day, for about eight months. A considerable period before the termination of the treatment, I examined him and he seemed to me to be perfectly cured. I have attended Clapier for another disease, and satisfied myself that there was then no trace of effusion into the abdominal cavity.

CASE VI.

Age, thirty-seven years—Intermittent—Ascites—Purgatives—Diuretics—Two punctures—Methodical compression, aided by diuretics and cathartics—Cure at the end of three months.

The following case is extracted from an unpublished collection, addressed to the *Académie de Médecine*, by Dr. Claret, of Vannes. A female, thirty-seven years of age, was admitted into the hospital at Vannes, in November, 1825, labouring under ague; the sulphate of quinine was administered in the ordinary dose, and the paroxysms disappeared. Having remained in the hospital for a verminous affection, for which anthelmintics had been administered, it was observed, that her abdomen increased in size; that her legs swelled; and that the urine was less copious than usual. Recourse was had to cathartics, which gradually diminished the

¹ During the summer of 1823.

dyspnœa she experienced. These agents, however, and several others that are commonly given in dropsy, having had no success, paracentesis was determined upon, by which twelve quarts of fluid were drawn off.

Three weeks afterwards the operation was again demanded, and at least as much fluid discharged. For two or three days the fluid continued to flow through the aperture made by the trocar. Immediately after the operation, the abdomen was carefully compressed by means of a bandage accurately applied, and some diuretic and cathartic drinks were given. After having employed compression for three months, she left the hospital, cured, and resumed her occupation. Of all her symptoms, there remained but a slight puffiness, which appeared in the evening, after the labours of the day. Four months afterwards, she returned to the hospital, for acute gastro-enteritis, of which she died in eighteen days.

On opening the body, there was found in the cavity of the arachnoid, and in the right side of the chest, a little fluid effused; but the abdomen, in which there had previously been considerable effusion, showed not a trace of it. The peritoneum, which was healthy in its greatest part, had contracted adhesions with the convex surface of the liver, which, in other respects, showed no alteration of texture. The mucous membranes of the stomach and duodenum were of a deep red, and presented evident traces of inflammation. There was no other morbid appearance in the cavity of the peritoneum.

CASE VII.

Ascites consecutive on peritonitis—Cathartics—Preparations of squill and mercury without success—Compression with the bandage of *Monro*—Copious flow of urine—Cure at the end of about a month.

The *Annals of Medicine of Milan*¹ also present us with a case of ascites, cured by means of compression, communicated by Dr. *Speranza*. In the month of April, 1826, a female was received into the Institute, a clinical establishment at Parma, with all the symptoms of ascites, which had existed for some months, and appeared to be owing to peritonitis. She had fever, derangement of the digestive organs, and the urine was turgid and scanty; thirst; considerable emaciation, &c. The abdominal distension prevented the condition of the abdominal viscera from being examined. Cathartics, preparations of squill and mercury, having produced no marked improvement, M. *Speranza* had recourse to graduated compression of the abdomen, by aid of the bandage of *Monro*; from that time the urine began to flow copiously; the patient did not pass less than fifteen pints a day, for three weeks; the fluctuation disappeared, and the abdomen resumed its natural size. The compression was continued for some time, joined with the use of bitters and a tonic regimen. She left the hospital in a state of flourishing health.

¹ Vol. xl., 433.

CASE VIII.

Age fifty years—Edema of the left arm—Ascites—Diuretics and cathartics, without success—Methodical compression of the abdomen—Cure.

On the 1st of August, 1826, a letter of consultation was addressed to M. Husson, physician to the Hôtel-Dieu, and myself, by a physician in the environs of Dijon, touching the health of Madame R——, aged about fifty years. It appeared manifest from this statement, which was circumstantial in its details, that the patient was labouring under ascites. The author had noted carefully, that the thoracic viscera presented no lesion, and that there was no reason for believing the existence of any in the abdominal organs prior to the disease in question. The digestive organs were in a healthy state; there was as yet no sign of swelling in the lower limbs, but the left arm had been long œdematous. I had, indeed, attended her for it, two years previously, with Professor Marjolin.¹ There being no counter-indication as to the administration of active cathartics, and diuretics, her physician advised them, but without success; this determined him to ask advice of the physicians of Paris. We suggested some other agents, that had been more or less celebrated in the treatment of dropsies, and especially methodical and constant compression of the abdomen with a laced bandage, which should accurately compress the abdomen from the pelvis to the base of the chest, and could be gradually tightened by means of straps with holes in them. We learned that this plan had ultimately full success, and that the physician referred the cure wholly to compression.

CASE IX.

Age sixteen years—Tumefaction of the knee—Dropsy of the femoro-tibial articulation—Rest, horizontal posture—Methodical compression of the knee—Cure in twenty-eight days.

A young man, sixteen years old, having been wounded in the knee by a thorn, appeared to be cured at the end of two days; he consequently continued to apply himself to business; soon, the knee began to swell; walking became difficult, painful, &c. Rest, and the application of a few leeches to the affected parts, diminished the swelling a little; but having again resumed his occupations prematurely, the knee began again to swell, and he was soon unable to walk without excessive pain; on this account he decided upon entering the Hospital Saint Antoine, on the 2d of August, 1829.

The affected knee was at that time double the ordinary size. Above the patella there was a considerable prominence, which became insensibly confounded with the lower part of the muscles

¹ The basis of the treatment was also methodical compression by means of a laced glove, well made, which compressed the limb from the extremity of the fingers to the axilla. This was at first attended with considerable success; but it did not continue after the patient left Paris. Its application was perhaps neglected.

of the thigh. Others of less size existed at the lateral parts of the thigh. The prominences were greatly increased when the limb was bent on the thigh; the skin covering them was tense, resisting, and doughy as it were: the patella touched the condyles of the femur and tibia. When, on the contrary, the limb was extended, the patella was raised from the articular surfaces by means of a fluid, which, by pressure, could be made to flow up or down. If, whilst the limb was extended, the knee was percussed or compressed, by one of the hands placed above and the other beneath the patella, fluctuation was distinctly felt. He walked with difficulty, but every other function was in a normal state. M. Rayer, who was in attendance, prescribed rest, the horizontal posture, and methodical compression of the limb above the knee. On the first day, compression was painful, and it became necessary to loosen the bandage; but, on the following days, pressure was borne better, and the tumefaction of the knee was not long in diminishing.

At the end of eight days, the affected knee had lost a third of its acquired bulk, and fluctuation was no longer sensible; the doughiness (*empâtement*) alone remained: during extension, the patella rested on the articular surfaces. In order that compression might be more effective and more uniform, compresses were applied semi-circularly above, and on each side of the patella—a point to which the effused fluid was crowded, owing to the retrocession of the patella, which naturally projects forward.

He left the hospital on the 20th of August, having no pain in the joint, and walking with ease. There was slight œdema above the patella, but the knee was almost restored to its normal size. The compression had been discontinued a few days before his exit, and nothing indicated the return of the effusion.

CASE X.

Imprudent use of cold drinks—Ascites—Want of success of the ordinary means—Methodical compression of the abdomen—Urine copious—Speedy cure.

M. Godelle, of Soissons, already cited at the commencement of this memoir, has inserted in the *Revue Médicale*, for January, 1829, another case of success from compression in ascites. In the case of a baker's boy, labouring under ascites after the use of a great quantity of cold drinks while bathed in sweat, M. Godelle, having employed the ordinary means without benefit, had recourse to compression, after having hesitated for some days on account of the difficulty of breathing and some symptoms of aneurism of the heart. The effect of the abdominal compression was, notwithstanding, most satisfactory; under its influence, as is commonly the case, the urine flowed copiously; and the size of the abdomen diminished so rapidly that at the end of eight days fluctuation could be no longer felt; the cellular infiltrations which accompanied the ascitic effusion likewise disappeared; and the patient soon left the hospital. Two or three months afterwards, he returned for pulmonary catarrh, which had existed only six days. M. Godelle satisfied

himself that there was no longer any trace of serous effusion in the cavity of the peritoneum, and that he was solidly cured.

The following is a case of ascites treated by compression employed immediately after puncturation. It is remarkable for its simplicity, and for the favourable circumstances in which the subject of it was placed, although the disease had been of long continuance.

CASE XI.

Age forty years—Ascites of four years' duration—Failure of cathartics and diuretics—Paracentesis—Compression of the abdomen—Cure at the end of some months.

Madame D * * *, aged forty, wife of one of the servants of the *Académie Royale de Médecine*, had been ascitic for four years: she had noticed her abdomen greatly increasing in size, without experiencing any other inconvenience than that resulting from the constraint produced by the abdominal tension. Menstruation was not deranged; most of the other functions were executed freely, and the appearance was that of a person in perfect health.

The patient did not think of having recourse to any treatment so long as the abdomen was neither too unwieldy, nor too bulky; but when it became a heavy burthen, making walking difficult, and not allowing her to wear a corset, without exposing herself to an inconvenient sense of suffocation, she decided on applying for relief in the early part of last June. I was then consulted. My opinion was that she should be tapped, and have recourse, subsequently, to some energetic means to prevent fresh effusion into the cavity of the peritoneum. In the mean time, until I succeeded in surmounting difficulties that were thrown in my way, I employed diuretics and active cathartics, but without any improvement.

The patient having decided on submitting to paracentesis, we proceeded to the operation on the 19th of July.

Through the opening made by the trocar we drew off twenty quarts of limpid, colourless fluid; we then explored the condition of the abdominal viscera, which appeared to us to be free from every kind of engorgement: the strongest pressure caused no pain. The enormous distension and extenuation of the abdominal parietes permitted this exploration to be made in a very complete manner; and by crowding the intestinal contents into one side of the abdomen, the examination of the parts on the opposite side was greatly facilitated. With such conditions it was easy to satisfy ourselves that no unpleasant complication existed, and that there was no obstacle to the employment of compression.

It was effectively put in use by means of the laced bandage already prescribed, which was continued for several months without any other means. No sign of effusion manifested itself, and the patient at this time seems to be completely cured; that is, more than four months after paracentesis, and the uninterrupted use of the graduated compression on the abdomen, which is still continued as a means of prevention. She has had some symptoms—

but they do not seem to have been in any way connected with the disease of which we are speaking—such as pulmonary catarrh, erysipelas of the face, followed by obstinate scabby eruptions, &c.

As I before remarked, endeavours have been made, with the aid of compression, to combat the ever increasing extension of the parietes of the cranium, in cases of hydrocephalus, and to cure cerebral dropsy. This agency has been chiefly invoked, after puncturation, as in cases of ascites. Dr. Glover, surgeon,¹ of South Carolina, having treated a child a few months old, afflicted with hydrocephalus, unsuccessfully for two months and a half, resolved to practice paracentesis of the cranium; the head of the little patient was at the time two feet in circumference; the sutures were separated; and fluctuation was manifest. There was strabismus; but the general condition was in other respects satisfactory. Puncturation was practised in the course of the sutura squamosa. It gave issue to a quart of serous fluid. The subsidence of the integuments, and the play of the bones on each other, induced the operator to draw off no more; a methodical bandage was then applied to exert a moderated compression, and keep the bones in contact. No unpleasant symptom followed; the greater activity of the urinary secretion was the only phenomenon that succeeded this hazardous operation. Two days afterwards, another quart of fluid was drawn off by the same aperture without any accident. The compression was continued. Six days after the first puncturation, Dr. Glover performed a second, to give exit to fresh fluid which had collected. This time he drew off three pints. For the ten succeeding days the condition of the child appeared to improve under the influence of methodical compression. It became fatter; the bones of the cranium approximated; the urine continued to be secreted copiously, and, what is worthy of remark, the eyes resumed their normal direction. A fresh accumulation of serum, however, required a fresh puncturation, which was performed in the coronal suture. A quart of fluid was drawn off, and compression again had recourse to. More than a month of remarkable improvement followed this last paracentesis and the accurate application of the compressive bandage; but it became subsequently necessary to repeat the puncturation twice, by which only a pint of fluid was abstracted. The child at length died eight days after the last operation. On opening the body the brain was found almost wholly destroyed, and three quarts of blood were effused into the cavity of the cranium.²

A little later, an English physician, Sir Gilbert Blane, also proposed compression of the cranium as a preservative in those who, with the bones of the cranium thin, movable, and extensible, might

¹ M. Bricheteau says "first surgeon," (*premier chirurgien*), but he is not very exact in those matters. In his "Considerations on the Art of Observing," he says that "a Quaker of Transylvania (Franklin) drew thunder from the heavens and subjected it to experiment!"—*R. D.*

² *Nouveau Journal de Médecine, Chirurgie, et Pharmacie*, April, 1819.

be threatened with hydrocephalus. He relates two cases in support of this prophylactic agency. The first occurred in a child sixteen months old, whose head from birth had been very large, and the upper fontanelle singularly open: there was, moreover, curvature of the spine: for several months he had been dull, inclined to somnolency; and his crying out, with the frequent application of his hand to the forehead, indicated that he suffered much in the head: his pupils, moreover, were dilated. A circular bandage was applied moderately tight around the head; and, in the course of the treatment, cathartics were frequently administered. In less than three months all the symptoms of cerebral affection had disappeared. The second child of which Sir Gilbert speaks was three years of age. He had a very large head, the fontanelles of which were not yet closed; methodical compression appeared to be very advantageous, and to arrest the development of the cranium.¹ In 1822, another English physician, Costerton, employed the plan of Sir Gilbert on a child three months old, which had a considerable prominence on one side of the head, formed by the elevation and disjunction of the left parietal bone: the head was not long in assuming a regular shape; and the health of the child, which had been wavering, improved in a marked manner.² The author adds, that the utility of compression in this case was more presumptive, as a brother of the little patient, affected with precisely the same disease, had died of hydrocephalus two years previously.

Three years later, two other English physicians again tried the use of compression, after having practised paracentesis, on infants labouring under hydrocephalus, but with ephemeral success; a fatal termination was not prevented; in this respect they resemble the result of the case related by Dr. Glover.³

From the facts just related, we are far from concluding that compression, employed as a prophylactic and after puncturation of the cranium, is an efficacious means against hydrocephalus. What we wish to affirm at this time is, that compression in the cases above related, instead of having caused unpleasant symptoms, has afforded relief, and retarded the effusion of fluid into the cavity of the cranium: in addition to this, it has increased the urinary secretion, a phenomenon deserving of meditation, especially as an entirely similar effect is observed when the abdomen is compressed in persons labouring under ascites.

There are two things to be considered in cases of dropsy treated by compression—the suppression of a vicious exhalation of serous fluid, which is indefinitely reproduced, and the absorption, or rather the retrocession, of the fluid. These two phenomena occur under the influence of purely mechanical causes; and in their accomplishment there is nothing, as it were, vital, in the sense commonly

¹ Medical and Physical Journal, by William Hutchinson; for September, 1821.

² Ibid. January, 1822.

³ London Medical Journal, for October, 1825; and Edinburgh Medical and Surgical Journal, same year.

given to the term. Let us examine what happens, carefully disengaging the mind from every preconceived idea—from every kind of system. The pressure excited by the bandage is communicated to the fluid; the fluid presses in turn on the exhaling surface, and mechanically prevents the afflux of a fresh quantity of serosity; consequently, instead of the effusion augmenting with the distension of the abdominal parietes, which is canceled by the compression, it is constrained to remain stationary: in this way, the progress of the serous exhalation into the cavity of the cranium is arrested, inasmuch as it is impossible for fresh fluid to enter a cavity wholly filled, and not admitting of farther distension; hence arises a retropulsion of the serosity separated from the blood—a retropulsion, which, by gradually communicating itself to the full canals, must induce some modification in the mechanism of nutrition. This modification must have a considerable relation with that which results from compressing the blood-vessels—crowding the blood into those that are above the point compressed. It is commonly said, when an effusion has disappeared, that the absorbing vessels have taken up the effused fluid; but, from what we have just said, it would perhaps be more natural to attribute its disappearance to a kind of imbibition, the mechanism of which has an entirely special relation to the effects of the compression. No one, at the present day, doubts that, by virtue of this imbibition, the living tissues are susceptible of being penetrated and traversed, to a considerable extent, by animal fluids, without the concurrence of exhalation and absorption. The experiments of M. Fodera, crowned in 1824 by the Institute, leave no doubt on this matter. There are cases in which the effects of this imbibition are admissible with difficulty; as, for instance, when the compression succeeds in causing the disappearance of an albuminous mass floating in the midst of the effused fluid; or when it acts on a cavity that has no outlet, and is surrounded by hard parts, as in the case of certain articular cavities.

M. Godelle, who has published many facts on the advantages of compression, believes it possible to attribute its effects in the cure of dropsies to venous absorption, which, he says, is rendered more active by this retardation of the circulation in the abdominal aorta, by the pressure made on the abdominal venous blood, and its precipitate return into the vena cava. This explanation, which has not appeared to us very lucid, seems to be contradicted by the action of copious blood-letting, which unquestionably renders the arterial and venous circulation more ready and rapid, and excites, in a marked manner, the absorption of effused fluids.

We may mention, in concluding, another effect of compression, which is much more readily comprehended. This is the production of adhesions amongst the viscera contained in the abdomen, by means of the peritoneum which envelopes them—adhesions which, in certain cases, oppose the recurrence of the effusion, as is incontestably shown by the case cited from those sent to the

Académie Royale de Médecine by M. Claret, of which we previously gave an analysis.

We have yet to say a few words on the inconveniences and dangers of compression. We have seen patients who could not bear it, in consequence of its causing difficulty of breathing, in a manner easily comprehensible.

We have also remarked, that it sometimes caused pain in the abdomen of those labouring under ascites, in whom there was, doubtless, at the same time, ascites and peritonitis; but we may say that, in the majority of cases, compression is perfectly innocuous, and that it gives rise to no unpleasant symptom.

From its having happened that inflamed parts have been dangerously injured by compression, it must not be concluded that it is always so, especially when the phlegmasia is external. Thus, M. Velpeau, in a memoir, which we have cited above, admits, unhesitatingly, that compression, in phlegmonous erysipelas, repels and arrests the accumulation of the fluids produced by the inflammatory irritation, and *strangles* the disease, without the production of serious accidents, in the generality of cases.

As for the danger, there ought to be none in employing it; inasmuch as its application can be arrested on the instant, when it begins to be injurious, and its consequences, which are in nowise comparable to those of internal medicines, ought to inspire no dread.

OVARIAN DISEASE.

DISEASE OF THE OVARY OF THE RIGHT SIDE SIMULATING EXTRA-UTERINE PREGNANCY.

Expulsive pains—Bellows sound—Incision of the posterior paries of the vagina—
Death—Encysted carcinomatous tumours.

A woman, aged forty-seven years, who had been long married, but had no family, was admitted into the hospital in the course of the month of June, 1834. Her catamenia had been suspended for about nine months; and she stated, that at the time of the conception of the child, which she fancied to be within her, a violent strife, caused by jealousy, had occurred between her and her husband, which often gave occasion to their separation; the distension of the abdomen was that of a female at the full period, and she had pains announcing her approaching delivery. In the right flank an irregular tumour was distinctly felt, which had the shape of a child's head; on the other side, there was another prominence, which might be regarded as constituted by the feet of a fœtus. This tumour was displaced, when the body was moved.

The patient said that she felt distinctly the motions of the child. There was a manifest bellows sound (*bruit de soufflet*) in the tumour, which was believed to be the placental blow (*souffle*). On the first examination by "the touch," the neck of the uterus could not be found; on a second attempt, made the day after, by M. Baudelocque, physician to the *Hôpital des Enfants*, who devotes himself especially to obstetrics, the uterine orifice was met with under the pubis. It was not dilated. In a third "touch," practised simultaneously by the rectum and the vagina, the same *accoucheur* discovered the presence of a fluctuating tumour, which he could displace with the finger, and which evidently formed part of the external abdominal tumour.

The pressure made by the tumour caused retention of urine; so that it was necessary to pass the catheter. She suffered considerably, and at intervals, as if in labour; she was without fever, or heat of skin; and when pressure was made on the abdomen, the pains became more frequent, and assumed an expulsive character, so as to occasion frequent useless efforts. Notwithstanding the use of baths, cataplasms to the abdomen, and blood-letting, the state of the patient grew worse and worse; she had not a single instant of rest, and her suffering became so horrible that she called aloud for them to extract the child, of which she believed herself pregnant, still affirming that she felt its motions.

The state of the tumour was again investigated on the 8th of July, by the physicians and surgeons of the hospital, to whom M. Baudelocque had the goodness to associate himself. It was generally thought, that there was extra-uterine pregnancy of the right ovary, and that she could only be relieved by making an incision down to the parietes of the cyst, which was presumed to contain a fœtus. In the consultation, it was long agitated, whether there existed a simple cyst, and what must be done, should no means be capable of relieving her intense suffering. It was agreed that an exploratory incision in the vagina was the only means that could promise any advantages, especially as there were no signs of peritonitis. This incision was made by M. Laugier, surgeon to the hospital, at three o'clock, P. M., in presence of MM. Dubois (of Amiens), Piédagnel, two foreign physicians, and a considerable number of pupils. After having again verified the condition of the patient, and the existence of the sound that was mistaken for the placental *souffle*, the strength of which was besides explained by the approximation of the tumour to the abdominal paries, an incision was made in the posterior paries of the vagina, without the production of much pain; a quart of clear but bloody fluid was discharged; and the index finger, introduced into the wound, detected a cyst, but nothing like a fœtus could be felt. She was placed in bed; emollient fomentations were applied to the abdomen, and a rigorous diet prescribed. On the day after the operation, she felt much relieved; the abdomen was but moderately painful, and the pulse a little frequent; there was no heat of skin.

On the 8th, she was nearly in the same state, as on the preceding

evening, except that the frequency of the pulse was much greater—112 pulsations per minute. The retention of urine recurred, and the bellows sound was heard as before the operation. She could only lie on the back; as soon as she turned upon the side, anxiety and acute pains came on; yet the abdomen was not at all sensible to pressure. Towards evening, fifteen leeches were applied to the perinæum; the emollient fomentations were continued, with gum water, and absolute diet. On the 9th, the features changed; the pulse became quicker, and the patient had sad presentiments, and constant jactitation. On the 10th, symptoms of peritonitis came on during the night; twenty leeches were applied to the abdomen, which was so painful that it could not bear the slightest pressure. On the 11th, the features were completely changed; the pulse was extremely small; the respiration hurried; and death occurred in the following night.

Necroscopy.—The tumour had settled considerably, and descended into the pelvis. After having divided the abdominal parietes, traces of peritonitis were found at the lower part, with albuminous flakes, effused serum, and the intestinal convolutions adherent by false membranes. The tumour was irregular and multilobated; on the left side it was pyriform, and somewhat like an amplified uterus; it was, in reality, in the cavity of that organ that a tumour had become developed, of the size of a large pear, and of a lardaceous character, but slightly softened. This tumour was covered by the womb, which appeared to be laminated in some measure, to afford an envelope to the adventitious production within it. It was, moreover, in communication with the vagina and cervix uteri, which was rendered so thin that it formed a small membranous opening of two lines only. The right portion of this tumour was composed of several lobes, whose surfaces were unequal, rough, ulcerated even, and covered, here and there, with membraniform flaps, or shreds (*lambeaux*). Internally, they were formed of several organic degenerations, such as carcinomatous and encephaloid tissues, separated by cellular septa, and small cysts, filled with pus, or a brown and ichorous serous fluid. No traces were found of the ovary, which had been probably invaded by the alterations which we have described, if it had not been itself their primary seat. At the inferior part of the pelvis behind, there was another mass, which, on the one hand, compressed the bladder against the arch of the pubis, and, on the other, pushed the rectum upwards and backwards, and pressed on the posterior paries of the vagina. In this portion of the tumour, cysts with a serous surface were observed, the exterior of which became confounded with the disorganised mass, and the diameter of which was about two or three inches. The incision, made into the posterior wall of the vagina, had penetrated one of these which had collapsed; another, situated behind, had not been opened; from this, a considerable quantity of fluid flowed. These two cysts, distended by fluids, and pressed by the weight of the tumour, evidently exerted a compression upon the bladder, vagina, and rectum. To this

cause must be referred the retention of urine, and the excessive pain of which the patient complained.

REMARKS.

It is important to remark, in the first place, that the peritonitis existed only *externally* (?)—we mean at the external surface of the intestines; that it did not penetrate the lesser pelvis, and that the abundant cellular tissue which filled that cavity presented no trace of inflammation and suppuration; and the same may be said of the environs of the wound made by the incision, which had even begun to cicatrise. From this it is evident that it was not the operation that caused the peritonitis—it existed previously; and that to this disease must be ascribed the violent pain of which the patient complained, although there was neither fever nor morbid heat, and the abdomen was only moderately painful on pressure. It cannot even be said that the operation hastened her death, for she was relieved for two or three days; and it must be borne in mind, that the sufferings which she experienced before the operation were intolerable, and on the point of rupturing every bond of life. With a single cyst without peritonitis, we might conceive the possibility of cure, if even the cyst had contained an extra-uterine fœtus, as seemed probable. The periodicals, especially those of England, have detailed such cases, in which even injections of a more or less exciting character were employed.

The suspension of the catamenia, which, in this case, had continued nine months; the circumstances of the fancied conception; the sensations of the patient, and the shape of the abdomen, gave rise to the idea of extra-uterine pregnancy. As for the placental bellows sound, which is often a sign of pregnancy, it was so simulated in this case as to lead very experienced individuals into error; and the case may tend to show the uncertainty of this sign. It demonstrates, at the same time, that the bellows sound, which M. Paul Dubois has termed *uterine*, in his memoir on auscultation applied to pregnancy,¹ may depend on another cause than the passage of the blood into the spongy and erectile tissue of the uterus or placenta. It is presumable, moreover, that the sound heard in our patient was caused by the compression exerted by the encysted tumours on the great arterial vessels of the pelvis, or on the abdominal aorta.

This bellows sound—first called *placental* by M. de Kergaradec, who was one of the first to mention it,² and afterwards *uterine* by M. Dubois, because, from his experiments, it is not always met with in the direction of the placenta, but rather in different parts of the uterus, when the infant is even dead and putrified in the uterus; this sound has, doubtless, some analogy with the bellows sound in diseases of the heart, and with those that are heard in different parts of the circulatory system. But, according to M.

¹ Archives Générales de Médecine, tom. xxix.

Mémoire sur l'auscultation appliquée à l'étude de la grossesse. Paris, 1822.

Dubois, the phenomenon which makes the nearest approach to it is the sound of the aneurismal varix, and this comparison leads us to the following considerations which belong to our subject.

When we carefully examine the arrangement of the vascular apparatus in a uterus which has been recently, or still is, developed by pregnancy—and especially if we inject it with liquid or gas—we easily observe that the most ready, direct, and numerous communications exist between the arteries and the veins; the parietes of the uterus seem to be a true erectile tissue, or—to return to the subject of our comparison—the tissue of a natural varicose aneurism. The column of blood conveyed by the arteries, and divided in their branches, proceeds to mix itself, by passing directly into the veins, with the less rapid and crowded columns which these canals contain. This phenomenon is unquestionably the cause of the bellows murmur or sound, which is so remarkable in varicose aneurism; it is extremely probable that the same noise is produced in the adventitious erectile tissues; and, for the like reasons, why may not this be the case with the parietes of an organ composed, in great part, of an analogous tissue? Endeavouring, afterwards, to establish the value of the bellows sound as a sign of pregnancy, the author adds—“As the pulsations with the bellows sound are dependent upon the diffusion of blood in the vascular erectile tissue of the uterus, when it is developed, it is evident that, if the presence of the product of conception in the uterine cavity can alone determine the development of the vascular tissue of the organ, the pulsations with the blowing sound (*souffle*) are an incontestable evidence of pregnancy. We shall think so until it shall be demonstrated by facts, that causes foreign to pregnancy have produced the same results.” This, then, is one of those facts which contradict the most judiciously established points of theory, and hence we have esteemed it important to publish it. There was evidently in this female, suspected of being pregnant, a manifest bellows sound, which, it was believed, must be referred to the placenta, and which was taken by experienced individuals for a sign of pregnancy. We cannot account for this mistake in any other way than by admitting that the bellows sound, perceived, was caused by the compression of the encysted tumour on the abdominal aorta, or on one of its principal lower divisions—a compression which diminished the diameter of the artery; and hence the shock of blood circulating with rapidity against the parietes of the vessel, and the sonorous noise resulting from it.

¹Mémoire sur l'auscultation appliquée à l'étude de la grossesse. Paris, 1822.

PERICARDITIS AND ANEURISM OF THE HEART.

Of the wheel sound (bruit de roue), the sound of the friction of new leather (frottement de cuir neuf), or of rubbed stuff (d'étoffe froissée); of the bellows sound (bruit de soufflet) in the cavities of the heart and in the arteries.

CASE I.

Symptoms of pericarditis—Wheel sound—Sound of friction of new leather or rubbed stuff—Death on the 26th day—Complete adhesion of the pericardium to the heart, by means of a false membrane.

Louisa Hunot, aged forty-two years, cook, of feeble constitution, subject to frequent rheumatic pains, which might be attributed to dwelling in a low, damp kitchen, was taken, on the 18th of June, 1834, with acute pains and swelling of the knees. Bleeding by the lancet and by leeches produced a speedy and salutary improvement; the patient was able to resume her ordinary occupations, but it was not long before she experienced fresh symptoms.

On the 26th of June, she had shivering and extremely acute pains in the præcordial region; the respiration was difficult and anxious. Two bleedings within a short time, and the repeated application of leeches to the left side of the chest, procured but little relief.

On the 2d of July, the patient was admitted into the hospital, where leeches were again applied to the præcordial region.

When observed on the following day, at the morning visit, she presented the following appearances: the face was deeply changed, pinched, and having the impress of deep suffering; yellow hue of the skin; emaciation; considerable anxiety; oppression; respiration panting; speech short and interrupted; very acute pungent pain in the præcordial region; dulness of the left side for a space of nearly five inches in diameter; sonorousness in the rest of the thorax; short dry cough, &c.

The pulsations of the heart communicated to the ear the sensation of the sound of a wheel (*bruit de roue*), and of frictions as if the organ were shaken in a fluid. Its movements of systole and diastole appeared to be confounded into one. Pulse small and frequent (140). (A blister to the anterior part of the chest; dressing with mercurial ointment; sinapisms to the limbs; lemonade.) Slight remission in the evening.

On the 4th of July, a little less anxiety; continuance of the other symptoms; *bruit de roue* and rubbing sound (*frottement*) very marked on the region of the heart. (Six cupping-glasses, with the scarificator to the præcordial region; continuation of the dressing with the blue ointment; for drink, gum water mixed with Seltzer water, absolute diet.)

On the 5th, less anxiety; respiration more easy; speech still short and interrupted; thirst violent; dysuria; pulse feeble and irregular; *bruit de roue*, and of rubbing (*frottement*); constipation.

(Gum water with Seltzer water; purgative clyster with senna and sulphate of soda; dressing for the blister as before.)

Evacuations copious during the day; marked relief; a little sleep. On the 6th, pulse frequent and more and more irregular (164); remission of the præcordial pain; the patient was obliged to remain in the sitting posture to breathe easier, and ward off the sense of suffocation, which was always imminent; she felt, on the left side of the neck, a motion and noise analogous to those of the ticking of a clock; the pulsations of the heart communicated to the ear a drier sound than on the preceding days. (Purgative potion, with castor oil and syrup of buck-thorn—of each an ounce; gum water with Seltzer water. Diet.) Intestinal evacuations copious; relief; general remission; sleep.

On the 7th, beatings of the heart isochronous with those of the pulse, which is less frequent than on the evening before (104); *bruit de roue*, and of *frottement*, very marked in the præcordial region, and resembling that which would result from rubbing a piece of taffety; respiration more easy; lying on the sides practicable, without suffocation: (same treatment; two broths—*deux bouillons*.) Diarrhœa; ten evacuations in the course of the day.

On the 8th, same state, excepting a pain at the right posterior portion of the chest, when the patient made a long inspiration. Pulse 104, equal and regular; same dulness as at first in the region of the heart: (same treatment; and, in addition, sinapisms to the feet.) Cramps in the left arm; insomnia; suffocation, obliging the patient to remain in the sitting posture.

On the 9th the pulse was less frequent (96); small dry cough; respiration interrupted; voice plaintive; slight subcrepitant rhonchus (*râle*) in the left side behind; some mucous sputa, &c.: (four cups, with the scarificator to the posterior part of the chest, on the left side; purgative clyster: toast and water, with Seltzer water: diet; dressing with mercurial ointment.) Three evacuations; insomnia; acute præcordial pain.

On the 10th, 11th and 12th, same state; symptoms of pneumonic catarrh persisting on the left side posteriorly, &c.: (toast and water; broth; the white looch;¹ same dressing.)

On the 13th, she took food secretly; agitation during the night; imminent suffocation; pulsations of the heart precipitate; pulse 145; crepitant rhonchus on the left side beneath the inferior angle of the scapula: (a blister to the præcordial region; sinapisms to the feet; toast and water; white looch; diet.)

On the 14th, tension of the abdomen; pain of the right hypochondrium; pulse very small, equal, and frequent (100): (toast and water; white looch; broth.)

On the 16th, ægophony at the inferior angle of the left scapula;

¹ The *looch album* of the Parisian Codex is made as follows: *amygdal. dulc.* 3 ss.; *amygdal. amar.* No. ii.; *sacchari albi* 3 iv. Make an emulsion by gradually adding 3 iv. of water. Then take *pulv. tragac.* gr. xvi. *ol. amygdal. dulc. recent.* 3 ss, *sacchar.* 3 ii.; add the almond milk gradually to this, and afterwards *aq. flor. aurant.* 3 ii.—*R. D.*

dulness at the two inferior and posterior thirds of the chest ; dulness still in the præcordial region ; pulse 96 : (same treatment ; broth.)

On the 17th and 18th, respiration very difficult ; pulse 100 ; insomnia ; urine scanty : (a blister to the right side posteriorly.)

On the 19th and 20th, slight amelioration in the general state of the patient ; dulness a little less extensive : (toast and water, with Seltzer water.)

On the 21st, pulse quick, small, and unequal ; pulsations of the heart more extensive, but so confounded as to make but one dry sound ; lips livid ; threatening of suffocation ; præcordial anxiety ; lipothymia ; great change in the features ; death in the night.

Necroscopy thirty hours after death. *Thorax*—Some miliary, isolated tubercles existed at the upper part of the right lung. The top of the left lung adhered strongly to the upper and posterior part of the pericardium. The left part of this membranous sac was adherent every where to the pleura costalis. Numerous adhesions were also observed between the right lung and the parietes of the chest. The heart adhered completely to the inner surface of the pericardium, in such a manner that there was considerable difficulty in separating them from each other ; to accomplish this it was requisite to remove the heart from the sac that enveloped it, as we take an animal from its skin. The two membranes that constitute the pericardium were very thick, and could not be separated from each other. The heart was flaccid and larger than natural ; the ventricles were dilated, and their parietes slightly extenuated.

Abdomen.—Considerable effusion of a yellowish, turbid, flocculent fluid. Some false membranes were observed, which formed adhesions between the convex part of the liver and the inferior paries of the diaphragm. The liver and spleen presented, in other respects, nothing particular. The intestines were slightly injected externally ; they were not opened ; nor were the head and vertebral column.

Dissection, in this case, exhibited evidences of three different diseases, although they were very analogous—to wit, pericarditis pleurisy, and peritonitis. The first was as extensive as it could be ; the second was less so ; and the third was only partial. The pericarditis should assuredly be placed in the first rank, and it was of this that she died : we had discriminated it and also the pleurisy during life. As for the peritonitis, which was in a part but little accessible to pressure, we had not suspected its existence.

Amongst the symptoms presented by this patient, we ought to note the peculiar sound of rubbing (*frottement*) heard in the region of the heart, a noise which appeared to us to resemble more the rubbing of a piece of taffety than that of a piece of new and dry leather. We shall recur to this phenomenon, which appears peculiar to inflammations of the serous membranes.

CASE II.

Pleuritic and præcordial pains—Nausea—Vomiting—Syncope—Palpitations—Sound of friction and of new leather—Death—Effusion into the pericardium—Adhesion of the lungs—False membrane on the heart and at the inner surface of the pericardium.

Alexander Pavier, aged twenty-eight years, merchant's clerk, of weak constitution, white skin and red hair, has undergone much fatigue, and committed great excesses. For two years he has been frequently indisposed; and has experienced indescribable uneasiness, nausea, and vomiting. For the last two months these symptoms have augmented, and, in addition, he has a pleuritic stitch in the left side, with difficulty of breathing.

Pavier entered the hospital on the 12th of March; on the following day he complained of the last mentioned symptoms; was pale, dejected, and tormented by thirst and nausea. The pulse was unequal and irregular; syncope from time to time; respirations thirty-eight in a minute; auscultation indicated a slight mucous *râle* under the right clavicle, with moderate vesicular expansion posteriorly; pulsations of the heart feeble, by no means extensive, irregular, and not isochronous with the arterial beats, but accompanied by a rubbing sound (*bruit de frottement*) difficult to depict by an exact comparison, but which slightly resembled what is termed the sound of new leather, or of a new saddle. The præcordial region was dull over an extent of five or six inches transversely. (*Treatment.*—Twenty-five leeches over the pained part, with three cups; pectoral tisane; mucilaginous looch.)

On the 19th, there was little improvement in the patient's condition; the state of the circulation and respiration had not changed; he vomited several times a bilious matter, by which he appeared to be relieved: speech and voice were much enfeebled.

On the 22d, the temporary improvement had disappeared; the difficulty of speaking and breathing was very great; the dulness, and sounds of the heart were the same; sometimes, after a fit of coughing, a sound of rubbing (*frottement*) was heard in the præcordial region; at others, one of air passing into a liquid: (fresh application of leeches with cups; sinapised cataplasms to the thighs.)

On the 24th the pulsations of the heart frequently changed their character; at times they were as above mentioned, with a feeble, rubbing sound; at others, there was merely a confused sound, and at others, again, a scarcely perceptible murmur. At times, he was affected with syncope and diarrhœa.

On the 30th, Pavier became more and more debilitated, so that he could only speak in a low and interrupted voice; the pulse was "miserable," and extremely irregular. He could lie only on the left side, and could breath with some ease only when he suspended his right arm by the wrist, over the fold of a handkerchief tied to the top of the bed. He died on the 2d, at two o'clock, P. M.

Necroscopy twenty-four hours after death.—When the chest was opened, the pericardium was observed greatly developed and

full of liquid, occupying the circumscribed space over which the dull sound was heard during life as well as on the dead body. Its right margin corresponded to that of the sternum, and its left extended two or three inches beyond the corresponding margin of that bone, a distension which crowded the left lung backwards. This lung was adherent in some parts to the ribs, by old cellular attachments (*brides*). The right lung was also adherent by cellular fibres organised into membranes, and leaving no space between them.

The pericardium had the shape of the heart; it was eight inches long and six broad. It adhered to the lungs at the sides and behind. Its outer surface was injected by a multitude of vessels, which crossed in every direction. The distended sac offered considerable resistance to compression, and contained about a pint of bloody fluid. The internal surface of the pericardium presented every where inequalities and asperities more or less developed, according to the place in which they were examined: thus they were very prominent at the posterior part of the heart, and might be compared to the intestinal villi of the ox. At the anterior part of the two layers, the asperities were smaller and harder; near the apex of the heart, and at the corresponding part of the sac, they were worn down, as it were, yet rugous. Except the posterior part of the two layers, which was of a deep red, the pericardium was of a rosy white colour. As regarded colour, texture, and the sensation communicated to the finger, the heart, anteriorly, might be compared to a calf's tongue. It was adherent to the pericardium only at its upper part, by means of some soft false membranes, which were reflected over the origin of the large vessels. All the villousities and asperities, of which I have spoken, were seated in an adventitious membrane, intimately adherent to the pericardium, from which it was impossible to separate it. The texture of this membrane was almost fibro-cartilaginous; its thickness was from one to two lines, according to the different parts which it occupied. The top of the lungs contained some cretaceous tubercles; their posterior part was softened and gorged with a bloody and frothy fluid. The stomach was greatly dilated, and its inner surface variously coloured; the anterior part of the mucous membrane was wasted (*usée*) without being softened; the posterior part was slate-coloured, and reducible into *bouillie* by the least friction; the two portions of the stomach were separated by a clear line of demarcation. The mucous membrane of the intestines was red and ulcerated in one part, at the end of the small intestine.

CASE III.

Violent blow with the pole of a carriage—Oppression—Palpitation—Œdema of the lower extremities—Bellows sound in the heart and arteries—Death—Hypertrophy of the left ventricle—Cartilaginous transformation of the sigmoid valves.

John Louis Cordier, locksmith, aged fifty-two years, was received into the Hôpital La Charité on the 31st of June, 1833, under the care of M. Rayer.

This man, who was of delicate constitution, irritable, and had been subjected for many years to a monthly hemorrhoidal flux, received, in 1829, a violent blow, from the pole of a carriage, on the anterior and upper part of the chest. At this period, he felt slight oppression, which increased when he made any extraordinary effort. About 1832, palpitations were added to the oppression, which had attained greater intensity, and returned in paroxysms. He had not, however, discontinued his daily labours; and it was not until six months before his entrance into the hospital, that the violence of the symptoms compelled him to inaction: his limbs were infiltrated. Decoctions of the root of asparagus, and of the *triticum repens*,¹ with nitre, were used with some success for the œdema. Two bleedings afforded no relief.

When he presented himself at the hospital, he was in the following state: puffiness of the face, especially of the right side; slight infiltration of the dorsal surface of the hands; considerable œdema of the lower part of the lower limbs; impracticability of lying on the back; oppression; constant sense of suffocation, augmenting by paroxysms, and often preventing him from sleeping; chest sonorous, except in the præcordial region; respiration pure and strong, especially at the posterior part; cough slight; expectoration moderately abundant, with thick, yellowish and mucous sputa.

When the præcordial region was percussed, a dull sound was rendered, especially at the lower part; the pulsations of the heart were evident to the eye; the application of the cylinder (the stethoscope,) gave the following information: strong impulse; the first sound of the heart, the ventricular sound, corresponding to the pulse, dull and not much lengthened; absence of the second sound—the clear sound—replaced by a very strong bellows sound, which, commencing at the base of the heart, ascended along the sternum, towards the upper extremity of which it grew stronger. On listening attentively about the lower part of the sternum, a double bellows sound was heard; the one appearing isochronous with the pulse, the other succeeding it: the carotids and subclavians were agitated by sudden pulsatory movements, very visible, isochronous with the pulsations of the heart, and presenting, besides, a very remarkable murmur (*bruissement*) when the finger was lightly applied to them. The ear likewise perceived a very marked bellows sound there. If the patient raised the upper extremities, the skin was violently elevated in the course of the brachial, ulnar, and radial arteries, whose flexuosities were remarkably increased. The pulsations were less energetic when the limbs hung along side the trunk; the pulse was full, strong, vibratory, and beat eighty-nine times per minute. The pulsations of the arteries of the lower limbs were only perceptible at the upper part of the thighs; and the bellows sound heard there, which might be produced by the compression of the cylinder, was isochronous with the pulse. The fourth right intercostal space, at an inch from the sternum, pre-

¹ See note to page 90.

sented a very circumscribed pulsation, to the extent of a finger's breadth, and a very marked bellows sound : it was scarcely possible to believe in any aneurismal dilatation of the artery creeping there; its branches were too small; the pulsation too intense and too circumscribed to admit of this diagnosis : the physician (M. Rayer) thought, that there was a lateral aneurism of the aorta in form of a *cul-de-sac*, the bottom of which was opposite the space that separates the fourth from the fifth rib of the right side. It was impossible to diagnosticate with more sagacity, as will be seen from the necroscopy.

During the twenty-four days which the patient passed the first time in the hospital, they were able several times to verify the symptoms enumerated above; the pulse preserved its force and fulness, and only varied a few pulsations in frequency. He was not bled : at the end of four or five days he was put on three quarters' allowance of food, and on the use of a tisane made of horse radish. Perfect rest allayed the oppression; there was a little sleep during the night; the cough was not urgent; the expectoration by no means copious; the œdema gradually disappeared, and the improvement was so marked that Cordier demanded his dismissal on the 28th of July.

On readmission on the 2d of September, he had the same series of symptoms as those mentioned : the præcordial region was the seat of constriction and of considerable effort; he could not rest on the back; the only supportable posture was the sitting, and even in this he experienced inexpressible anguish, with constant threatening of suffocation. In other respects, auscultation afforded the same evidences—bellows sound in the aorta, carotids, and subclavians; pulsations visible; pulse ninety-two, strong and vibratory; rhonchus at the posterior and right part of the chest; expectoration of a thick, copious, yellowish mucus; œdema of the lower limbs. Rest did not ameliorate these symptoms; they continued with intensity until death, which took place on the 14th of September.

Necroscopy twenty-six hours after death.—Slight cadaveric rigidity; serous infiltration of the inferior limbs, especially at their lower part; the pericardium contained only a small quantity of serous fluid. The heart was of considerable size, the increase depending almost wholly on the left ventricle; its cavity was augmented, and its hypertrophied parietes were nearly an inch thick; the auriculo-ventricular valves—right and left—were healthy.

The right part of the aorta, at an inch below its insertion into the heart, presented a pouch, shaped like the finger of a glove, of the thickness of the thumb, and fourteen lines in length; the bottom of this pouch was adherent to the inner surface of the reflected layer of the pericardium.

If water was poured into the aorta, it entered the left ventricle; the sigmoid valves left between them a triangular separation, whose base was eight lines long, and which became smaller and smaller towards the summit; and if the area of the triangle be calculated, by multiplying its base by half its height, (nearly four

lines,) we have an opening of thirty-two square lines, by which the blood was able to reflow into the heart during life. These valves were thick; their edges straight, and the tubercles of Aranzi effaced; they were transformed into a tolerably firm elastic tissue, very similar to cartilage. When the finger was introduced into the aorta from the ventricle the valves could readily be arranged, when they left between them a space which, during life, could present no obstacle to the reflux of the blood.

Above the right sigmoid valve there was in the aorta a perfectly circular aperture, four lines in diameter, which communicated with the small pouch mentioned above; the external coat of the artery alone seemed to constitute its paries.

The inner surface of the aorta was studded here and there with yellowish patches, lying under the membrane, which was pale and firm; the brachio-cephalic trunk, the subclavian arteries, the carotids, and the axillaries, were larger than natural; in other respects they showed no alteration of tissue. The brachial, ulnar, and radial arteries were remarkably tortuous. Excepting the hypostasis of blood at the posterior part of both lungs, the other organs presented no perceptible alteration.¹

CASE IV.

Pulsations of long standing—Dyspnœa—Intermittent bellows sound—Death—Passive dilatation of the cavities of the heart—Sigmoid valves of the aorta wholly ossified.

A man, aged seventy years, lean and decrepid, was admitted at the *Clinique* of La Pitié, on the 2d of November, 1832; he had suffered for several years under irregular and tolerably strong palpitations, accompanied with dry cough, with very great oppression, increased by going up any ascent.

Almost every part of the face, and particularly the lips and tongue, were livid; auscultation did not at first exhibit the existence of any abnormal sound in the præcordial region; percussion did not present any thing remarkable; the pulse was frequent, but regular; there was a little catarrhal cough, but soon there supervened an evident constraint in the circulation, for which a large application of leeches was made to the anus, followed by a tartar emetic plaster between the shoulders.

On the 8th, the patient, in spite of the use of these agents, was in a state of remarkable anxiety; the face was livid; the jugular veins distended; the pulse small and irregular, and, in the præcordial region, the bellows sound could be heard. These symptoms were relieved a little: it appeared, indeed, that the bellows sound ceased for a moment to recur subsequently, an alteration which took place several times during the day. Recourse was had to the use of the tincture of digitalis, and sinapised foot baths; the patient was momentarily relieved, but he died a few days after.

¹ Guyot, De L'insuffisance des Valvules Sygmoïdes Aortiques. Thèse, Paris, 1834.

Necroscopy.—The body was in a state of remarkable emaciation; he was devoid of penis; a cicatrix announced that the organ had been amputated; the intercostal cartilages were ossified; the pericardium was almost wholly covered by the anterior edge of the lung: it contained a little serosity; the heart presented an augmentation of size by more than a third at least; the right cavities were distended, and thin; the auricles and left ventricle presented the same disposition; the septum between the ventricles was of little consistence; the sigmoid, the tricuspid, and bicuspid valves were sound; the three sigmoid valves of the aorta were entirely ossified. One of them was arranged *en panier de pigeon*, as we say, and projected into the cavity of the aorta; its extreme density did not permit it to approach the parietes of that artery. The two other valves, on the contrary, which were also ossified, were adherent to the arterial parietes, and could not be separated from them. It is manifest from this disposition, that two thirds of the caliber of the orifice of the aorta were constantly free, and that the other third was always occupied by the projection formed by one of the three sigmoid valves. The ascending aorta, and the substernal curvature of that artery presented numerous patches (*plaques*) of ossification. The lungs were gorged with mucus; the pia mater was infiltrated with a little serosity, and one or two small spoonfuls were effused into the lateral ventricles. The digestive apparatus presented nothing remarkable.¹

CASE V.

Palpitations—Menstrual suppression—General infiltration—Bellows sound—Cat sound (*bruit cataire*)—Expectoration of blood—Death—Serous effusion into the chest and abdomen—Hypertrophy of the heart—Fibro-cartilaginous degeneration of the tricuspid valve.

A washerwoman, aged twenty-four years, complained of palpitations, and sensible diminution in the quantity of blood which she commonly lost at her menstrual periods; the catamenia at length stopped altogether. Some months after, the abdomen swelled, and general infiltration supervened, which caused her to enter the Hospital Beaujon, on the 24th of August, 1832.

Face pale; general infiltration of the subcutaneous cellular tissue; respiration difficult; cough; expectoration mucous and bloody; dull sound at the inferior and anterior part of the left side, which diminished above when she was made to lean to the right; pulsations of the heart obscure, and dull at the middle part of the præcordial region; bellows sound, which sometimes approximated the *bruit cataire*; pulse hard and contracted—giving 112 beats in the minute; abdomen distended, but indolent, with fluctuation; diminution of urine, &c. (Bleeding at the arm; digitalis purpurea, in the dose of half a grain, morning and evening, associated with iron filings, in an increasing dose.) The bellows sound, mentioned

¹ Extract from the *Journal Hebdomadaire de Médecine et de Chirurgie*. Tom. ix. 475. Case by M. Martin Solon.

above, diminished, but augmented some days afterwards; the elevation and diminution of the pulse followed the same variation, with the difference of about 20 pulsations per minute.

On the 17th, expectoration rusty; pulse-irregular; pulsations of the heart tumultuous; oppression stronger. (Bleeding to ten ounces.)

On the 18th, respiration more easy; expectoration less rusty; beatings of the heart less tumultuous; increase of the difficulty of breathing; death.

Necropsy.—General infiltration of the subcutaneous cellular tissue, accompanied with collections in the serous cavities, which had been detected during life; a great portion of the left lung was infiltrated with bloody serosity, and was the seat of a kind of hepatisation. The size of the heart was increased one third; its cavities were very large; the parietes of the ventricles were of almost equal thickness; the left being a little extenuated, and the right slightly hypertrophied, as well as the ventricular septum. The arterial orifices presented nothing remarkable; the tricuspid valve had on its internal surface, between its insertion and its fringed margin, an annular vegetation of fibro-cartilaginous density and white colour, two lines high, directed towards the auricle, and easily lacerable under the efforts of the finger. By this arrangement, the valve formed a circular aperture two or three lines in diameter, constantly open, and which, whilst it did not prevent the entrance of the blood from the auricle into the right ventricle, permitted its reflux from the ventricle into the auricle. On the mitral valves there were some vegetations of the same nature, of the size of hemp seed, developed on the fringed margin of the valves. The other organs exhibited nothing remarkable.

CASE VI.

Palpitations—Sense of suffocation—Infiltration of the extremities—Weak bellows sound, some days before death—Dilatation of the left ventricle and auricle—Encysted tumour, in a state of suppuration, in the left auricle.

Jane Fèvre, aged 28 years, seamstress, of feeble constitution, had been subject for a long time to palpitation, sense of suffocation, and transient swelling of the feet. She had already been treated in several hospitals, when she entered the Hospital Necker, on the 24th of August. She presented herself to our observation in the following state:—respiration very difficult; imminent sense of suffocation, which obliged her to remain seated in bed, the head supported by pillows; pulsations of the heart feeble, extensive, without impulsion, and without abnormal sound—more marked to the left than to the right of the præcordial region; pulse regular, but feeble, and little developed, giving from 90 to 100 beats in the minute.

Her state varied little during the fifteen days which she passed in the hospital; except that the respiration appeared more and more difficult and embarrassed, and the pulsations of the heart more

tumultuous, with a slight bellows sound, which did not seem to have existed at the time of her entrance into the hospital. She died on the 6th of September, at eight o'clock in the morning. I had written on the book of diagnosis—*Aneurism of the left ventricle, with dilatation of the ventricle and auricle of the same side, without hypertrophy.*

Necroscopy.—General anæmia, with some cadaveric sugillations at the posterior part of the chest; skin fine and glossy; a little œdema of the abdomen and calves of the legs. The two sides of the chest contained considerable effusion—the right a quart, and the left about three pints. The lungs were pressed upon by this fluid: the right was crepitant in the greater part of its extent; the left presented, at the middle of its anterior surface opposite the heart, a patch, two or three inches in size, of red pulmonary tissue, hard, altogether impermeable, and infiltrated with blood, which did not flow out either by incision or by pressure, and which seemed to be combined with the parenchyma. This patch, which occupied almost the whole thickness of the lung, and had all the appearance of liver, was plainly circumscribed, and wholly distinct from the rest of the organ: it appeared to us to be the result of chronic pneumonia.

The pericardium contained a little citron-coloured serum. The heart was pale, flaccid, somewhat large, and sunk down into the shape of a birding-pouch (*en forme de gibecière*). The right cavities were in a sound state. The left ventricle was as large as the right, and the thickness of their parietes was the same. The mitral valves were hard and cartilaginous; and, when applied back to back, two small apertures resulted, of the size of a quill, separated from each other by the tendon of the internal valve. The left auricle was greatly dilated, and could have contained a large hen's egg; it inclosed some black blood, and a kind of *champignon* or fungous growth of a red colour: the form of this body cannot be better compared than to that of the *Lycoperdon*, commonly called *vesse-de-loup* (*puff-ball*). This fungus had no pedicle, but was feebly adherent to the inner surface of the auricle, from which it could be separated without any force. It was situated at the left upper part of the auricle, which presented, at the point of adhesion, inequalities that appeared to have served for a kind of incrustation. This species of tumour, *quasi* free in the auricle, was more than an inch in diameter; it had a central cavity communicating with others of smaller size, filled with a reddish, manifestly purulent, fluid; it was of fibrinous appearance, and hard and coriaceous, except at the point of adhesion, which was a little softened. The pulmonary veins were dilated and filled with black blood.

This case is not simply remarkable in respect to the lesion of the mitral valves, which reduced the auriculo-ventricular orifice to two apertures of less than a line each in diameter, and by their insufficiency offered an obstacle to the circulation; it also presented a tumour floating, as it were, in the left auricle—a tumour

which was probably formed originally by a clot of blood, which had afterwards become the centre of an inflammatory process, and a suppuration in which the auricle had taken no part. 'This fungus presents, then, a rare example of disease of the blood, which is susceptible, it seems, of becoming the seat of different changes as yet but little determined. From the appearance of the parts, it was impossible to establish any relation by continuity between the inner surface of the auricle and the tumour; the latter was simply agglutinated to it, but was not attached to it by any pedicle.¹

CASE VII.

(Abstract.)

Crebot, aged fifty-three years, turner, residing at Mewdon, entered the hospital on the 5th of November, 1833. There was written in the book of diagnosis—*Dilatation of the left ventricle of the heart; bellows sound at the first normal sound of the heart.* The disease had existed seven months, and was dated from a violent fit of rage. There was, moreover, hypertrophy of the liver, which extended below the ribs. On opening the body, the left ventricle was found hypertrophied and dilated; the arch of the aorta was also prodigiously dilated, and covered with a membranous layer of adventitious cartilage. This cartilaginous degeneration was also remarked in the periphery of the auriculo-ventricular orifice. The right ventricle was likewise hypertrophied. There was a pretty considerable quantity of water effused into the chest. The liver was also hypertrophied, and its tissue softened.

CASE VIII.

(Abstract.)

Dains, aged 48 years, wine merchant at Vaugirard, entered the hospital on the 8th of December, 1833, in a very advanced stage of disease of the heart, with excessive oppression and infiltration of the lower extremities. He died on the 11th, three days after admission. In the book of diagnosis was written—*Active aneurism of the left ventricle, with hypertrophy and dilatation; contraction of the auriculo-ventricular orifice, and ossification of the mitral valves.* There was a very distinct file sound (*bruit de lime*) at the first normal sound of the heart. On opening the body, the heart was found so large as to be an object of astonishment to the assistants. The left cavities were dilated, and hypertrophied in proportion. All the periphery of the auriculo-ventricular orifice had passed to the state of fibro-cartilage; the extremities of the mitral valves were ossified so that they could not be joined; they were, consequently, remarkably inadequate for their functions.

¹ For an interesting case of fibrinous concretion in the heart, caused perhaps, in the first instance, by obstacle to the circulation in the lungs, see the "American Medical Intelligencer" for July 1, 1837, p. 125.—*R. D.*

The two cases of pericarditis, which we have related at the commencement of this memoir, presented, with some modifications, a phenomenon of great importance, and which may be considered hereafter as a certain sign of inflammation of the serous covering of the heart—a disease hitherto regarded as very obscure. This sign consists in a sort of rubbing (*frottement*), which has been compared, by some, to the noise made by a new saddle, or more simply to new leather when rubbed or worked (*mis en œuvre*); by others, to the rubbing of a piece of taffety, or rather to the noise of a small wheel in motion. It may likewise present, more or less distinctly, the characters of the rasp (*rape*) or bellows sound, produced by ossification or insufficiency of the cardiac valves. We are of opinion, that the variations occasionally observed in the same patient, at different periods of the disease, are owing to very different causes—such as the nature of the false membrane which is formed in pericarditis; its extent; the presence and quantity of serosity effused in consequence of the inflammation; the more or less rapid progress of the inflammation, &c. This rubbing sound—the result of the sliding of the inflamed serous surfaces of the heart and pericardium on each other, when, having become irregular and covered with coagulable lymph, they are no longer bathed with the product of the natural exhalation; this rubbing sound, we say, has not been the object of sustained researches, although Laënnec had pointed it out long ago, and the insufficiency and uncertainty of the signs of pericarditis had been admitted. But perhaps we ought to attribute, to that distinguished pathologist himself, the little anxiety that has been felt by physicians to confirm this important phenomenon; for, after having pointed it out and compared it to the creaking of the leather (*cri du cuir*) of a new saddle under the rider, he adds—“*I for a long time thought that this sound might be a sign of pericarditis, but I have since satisfied myself it is not.*”

In consequence of this belief, he made no mention of it in the article pericarditis of his second edition. Some of his pupils, and especially M. Collin, assert that they have since met with it, and M. Meriadec Laënnec, author of the third edition of the work of his cousin, published in 1831, seems to have no doubt as to the reality of the sign, which “new facts,” says he, “will one day confirm.”²

From this detail, the reader will be enabled to appreciate the memoir published by an English physician—Dr. Stokes³—and the degree of originality of a work which is, in other respects, so estimable. That author, who has collected several facts which serve as a basis for his memoir, constantly uses the word friction (*frottement*;) in the majority of cases it is certainly the most accurate, although it is proper to say that, in certain circumstances, the comparison

¹ Traité de l'Auscultation, tom. iii. p. 64, 2d edit.

² Tom. iii. p. 262, note.

³ Researches on the Diagnosis of Pericarditis, by W. Stokes, of Dublin, in the Journal of Medical and Chemical Science; 1833.

with the sound of new leather is more correct; thus, in a case which has been communicated to me by Dr. Clémanceau, of apparent pericarditis, that accurate observer assured me he had distinguished, three days before the death of the patient, (who unfortunately was not opened,) a sound of new leather so marked, that he thought he heard—to use his own language—a diminutive sound of that creaking of new boots produced when the leather is dry, and the wearer walks or ascends the stairs.

This sound, as might well be conceived, is in an increased ratio with the dulness of the præcordial sound that results from the effusion of fluid into the pericardium, because the fluid prevents the friction of the irregular and inflamed surfaces—a peculiarity well established in our second case, as well as by Dr. Stokes: he cites, indeed, several cases where the gradual disappearance of the rubbing sound could be distinctly traced as the disease made progress; and where the sound (*bruit*) returned with the return of the sonorousness.

Dr. Stokes is of opinion that the rubbing sound, whatever may be its form, may be esteemed a sign of pericarditis in the following circumstances. *First*; when it appears suddenly,—a disease of the valves not producing so promptly an intense rasp sound (*bruit de râpe*). *Secondly*; when it is accompanied by a tremor (*frémissement*) sensible to the hand. *Thirdly*; when it is rapidly displaced according to the progress of the inflammation. *Fourthly*; when it accompanies the two sounds of the heart, in cases where there had previously been no sign of disease of that organ. *Fifthly*; when it disappears under the treatment, and does not return when the heart is excited. *Sixthly*; when it is perceptible over a small space only even when very strong.

As this subject is one of great moment, and as the essay of Dr. Stokes is only known in France by an extract inserted in the *Archives Générales de Médecine*,¹ we may transcribe the following propositions, although perhaps premature, which conclude the memoir on pericarditis.

1. In pericarditis, with exudation of *plastic lymph*, the friction of the two irregular surfaces produces a peculiar sound perceptible to the ear, and a vibration sensible to the hand, which distinguish the disease in the absence of every other symptom.

2. The more irregular the surfaces of the pericardium, the more distinct are the symptoms.

3. The rubbing sound accompanies both sounds of the heart in almost every case.

4. Generally it is perceptible only in the præcordial region.

5. It occurs with different modifications, but frequently resembles the sound produced by advanced disease of the valves of the heart.

6. It is most distinct when the region of the heart gives a clear

¹ Tom. iv., second series.

sound on percussion ; but the existence of fluid in the pericardium does not necessarily imply its total disappearance.

7. It may recur after the absorption of the fluid contained in the pericardium, or on the renewal of the inflammation.

8. The rubbing sound may be manifested when the tremor is no longer perceptible by the hand.

9. It is rapidly and markedly modified by a direct antiphlogistic treatment.

I have twice heard the rubbing sound in peritonitis, by auscultation of the abdomen ; but as the patients were cured, the rigorous demonstration of the existence of the sound, as a sign of inflammation of the peritoneum, was wanting. It appears, by the way, that this sign has frequently been detected at the Hospital Cochin by one of the physicians, and an *interne* of that establishment.

Most of the sounds of the heart, of which the cases we have related present examples, have exercised the sagacity of the physiologist and the physician, who have strenuously endeavoured to appreciate the cause of the phenomena, and to obtain, at the same time, a valuable means of diagnosis. But this point of etiology is difficult of elucidation, inasmuch as the diseases of the heart, in which the abnormal sounds of which we have spoken are observed, only become dangerous and fatal after the lapse of a long period, in which the patients are often lost sight of ; or else, after having been in several hospitals, they enter another to die, under which circumstances sufficient information cannot be obtained respecting their state. We have constantly in the Hospital Necker a goodly number of persons labouring under disease of the heart, and yet we are rarely able to obtain complete histories, and they frequently quit the hospital to die elsewhere.

Laënnec believed he could account for certain abnormal sounds of the heart, such as those of the rasp, bellows, &c., by the contractions of the fibres of that viscus ; which, according to the delicate and minute observations of certain physiologists, produce a kind of sonorous and snoring thrill, (*roulement sonore et ronflant*,) similar to that made by a body in rapid rotary motion. The author was, however, governed by a kind of prepossession, which led him to eschew every kind of physical comparison, even that resulting from experiments which he had made by injecting water into the hose of a fire engine ; the noise of the fluid injected being, according to him, a thrill (*frémissement*) in no respect comparable to the phenomena of the organism ; and when pressure by the hand on these tubes augmented the sound, or gave it another character, he attributed this change to the contraction of the muscles of the hand, and not to the shock of the fluid. This theory was soon compelled to give way to one more natural, and that falls, we may say, under the senses—which consists in explaining the abnormal sounds of the heart by the shock of the blood against the parietes of the organ, or the friction of that fluid in passing through the narrow spaces produced by organic lesions of the auriculo-ventri-

cular or sigmoid valves ; lesions which at times greatly diminish the cardiac and arterial orifices.

At a later period, M. Bouillaud, to whom the theory of the abnormal sounds of the heart and arteries is indebted for many researches, admits that three circumstances might influence the development of these sounds : *first*, the augmentation of the motive force of the heart ; *secondly*, narrowness of some part of the canal which the blood has to traverse ; *thirdly*, the inequality or irregularity of surfaces, usually smooth and polished, which are in contact with that fluid.

A Scottish physician, Dr. Corrigan¹—designating by the term *insufficiency* or *incompetency* that state of morbid alteration, in which the valves cannot close exactly the cardiac orifices, cut off the column of blood and prevent its reflux—explains the bellows sound by such insufficiency. This new term is far from expressing a new idea, yet it has received favour amongst us, and the change which it characterises has become an object of unceasing study. A young physician, whose name has already been mentioned—M. Guyot—has recently consecrated a good thesis to it, the materials for which have been collected in the wards under the care of one of those Parisian physicians who cultivate the science of medicine with most ardour—M. Rayer. According to M. Guyot, as we do not meet with the remarkable phenomena pointed out by Dr. Corrigan in every case of insufficiency of the valvular apparatus, two categories must necessarily be established :—the one comprising the cases in which the valves are so impregnated with calcareous salts, that they can no longer be raised at the time of the systole, and form an immovable floor, in the centre of which a narrow fissure only exists,² through which the blood can escape,—and the *latter* including every case in which the aortic valves, allowing of a reflux at the time of the diastole, are raised to a certain extent against the parietes of the aorta, when the systole of the ventricle is effected, and thus present a free passage to the blood. The third and fourth cases must be ranged in that category. From later researches, made at the Hospital La Charité, on this difficult topic of diagnosis, it has been deduced that the insufficiency of the auriculo-ventricular valves produces the bellows sound at the first normal sound of the heart, whilst that of the sigmoid valves produces the same bellows sound at the second normal sound of the heart.³ They have, consequently, gone farther than Dr. Corrigan in establishing the insufficiency of the valves of the auriculo-ventricular orifice, of which we have reported an example : (see the sixth case.) As regards the mechanism of the bellows sound owing to insufficiency of the valves, we can scarcely attribute it to any thing but the friction exerted by the blood when it reflows

¹ Edinburgh Medical and Surgical Journal.

² This is the very rare subject of our sixth case.

³ Letter of M. Littre on the sounds of the heart. *Gazette Médicale de Paris* ; Sept. 13, 1834.

against the morbid sigmoid valves, the aorta, and the large trunks that arise from it.

Many experiments have been made to explain and demonstrate, by means of analogy, the rubbing sound, which may be caused by the blood under certain circumstances, in passing along the vessels. M. Pelletan, for example, has discovered experimentally that when a fluid moves with any velocity whatever in a canal which has a polished surface, no kind of sound can be heard externally; but if, on the other hand, the inner surface of the canal is unequal or irregular, or if it has prominences in it, a noise of a peculiar kind is heard, analogous to a murmur or roaring, (*bruissement*), which certainly greatly resembles the bellows sound.¹

On the other hand, M. Magendie, adopting another method for explaining the physiological sounds of the heart, has endeavoured, in a memoir read to the Institute, to establish that these phenomena are owing, not to the displacement of the arterial valves, but to a double shock of the heart against the parietes of the thorax; one of these produced by the apex of the organ at the time of the contraction of the ventricle; the other by the anterior surface, at the moment of their dilatation.

The author has not yet published the part of his memoir which treats of the abnormal sounds of the heart; but it may be anticipated that he will not agree with those who explain the bellows, rasp, file, and saw sounds, &c. by the friction of the blood against the mitral and sigmoid valves, when ossified, contracted, and not closing perfectly, as he sets out with denying that in the physiological state the physical action of the blood on the cavities of the heart, the valves, and arterial trunks, is appreciable to the ear.

M. Bouillaud, however, has affirmed, in a letter to the *Académie des Sciences*, that he obtained results opposite to those of the celebrated physiologist of the Institute;² and, in a second letter, he has forcibly combated the ingenious theory of M. Magendie, concluding that he could not give a more satisfactory account of the abnormal sounds of the heart than that which he had detailed in his first letter, which places the cause of the *tictac*, or double sound, in the play of the valves, and the passage of the blood through the orifices of that organ.³

M. Piorry, whose zeal for science is so well known, has undertaken numerous experiments to remove all doubts regarding the physiology and pathology of the pulsations of the heart. He took a simple injecting syringe, by means of which he established a current of water by jets in an incompressible pipe; by the stethoscope applied to the tube, the assistants heard a sound analogous to that produced by blowing into the hands; the stronger the stroke of the piston, the more intense the sound, and yet the inner surface of the pipe was continuous and without any roughness. The same experiment was made on the vena cava inferior, in the dead

¹ Lancette Française; Dec. 18, 1832.

² Journal hebdomadaire de Médecine.

³ Ibid. t. iii. No. 36, p. 268.

body; and when a current of water was made to enter the lungs by the pulmonary artery, by auscultation the passage of the fluid was heard to be attended by a sound analogous to that heard in the cavities of the heart during life. The experiment was also performed on the pulmonary veins through the left heart, and with the same result. The character of the sound varied, according to inappreciable circumstances, from the blowing (*souffle*) to the hollow (*sourd*) sound; the stronger the force of the piston, the more marked the sounds, &c.

These experiments were repeated, the sternum being removed, but with no remarkable change in the results. Both sides of the heart were injected at the same time; a ligature, gently drawn, was placed on the aorta near the heart, so as to diminish its capacity, by rendering the inner surface of the artery rugous, and to offer greater resistance to the passage of the fluid. The bellows sound was extremely marked, especially opposite the narrow portion of the artery. Other similar experiments, made by the author in the course of the aorta, convinced him that the sounds heard in the arteries may occur without there being any contraction in the vessels, but that any contraction increases the intensity of the sound.¹ The conclusions to be deduced from these experiments are easily laid down, but they are opposed, in many respects, to those drawn by MM. Pelletan and Magendie, from other experiments instituted with the same object. M. Piorry does not say so; but our duty as historians obliges us to make the remark.

After perusing what we have just stated, we cannot but deplore the fate of physiological experiments in this question as in many others. M. Bouillaud formally contradicts M. Magendie; M. Piorry obtains different results from M. Pelletan; and, what is still more unfortunate, M. Piorry, armed with those results of his experiments, which he even compares to the works of nature, does not appear to us to agree entirely with M. Piorry, the physician to La Salpêtrière, who visits two hundred patients a day, makes a number of dissections, and does not find the bellows sound in one of twenty cases, in which there was, notwithstanding, ossification and narrowness of the orifices of the heart; yet these individuals were in conditions similar to those of the subjects of his experiments! It is, doubtless, not the fault of Piorry that the consequences are not more rigorous, but the fault of a subject beset with difficulties. For ourselves, making abstraction of all the experiments which we have not made, and which appear so fallacious in the absence of life, and with such different feelings on the part of the experimenters themselves—if we refer to our own cases and dissections, we shall not hesitate to regard the abnormal sounds of the heart as the result of contractions of its cavities, and of the arteries that arise from them, as well as of ossification of its valves, whether insufficiency (*insuffisance*) may or may not be present; and the exceptions that may be adduced against this mode of viewing the

¹ Archives Générales de Médecine. June, 1834.

matter, if they do not confirm the rule, cannot at least weaken it. If, then, we are told that the bellows sound is rarely heard in the old women at La Salpêtrière—who, notwithstanding, exhibit valvular ossifications and contractions of the cardiac orifices after death—we may reply, that this is the effect of age; that in these old and worn-out individuals the heart has not a sufficient degree of energy to impress the necessary rapid motion on the blood, and to produce the friction, which is its immediate consequence. To this cause must be attributed the feeble intermittent sound mentioned in our fourth case, the subject of which was seventy years old, and exhausted by excesses and misery. Although we are far from denying that the bellows sound may be the result of some other cause than that which the shock or friction of the blood in the cavities of the heart and the vessels produces, we must say that we have never observed the bellows, file, rasp, or saw sound, without ossifications and contractions of the vessels being present after death to account for those abnormal sounds.

It must be admitted that it is more difficult to explain the “devil sound” (*bruit de diable*), heard in the arteries of certain females who have not menstruated and are chlorotic—a sound which resembles less the bellows sound of the heart than is asserted. We believe, however, that the curvatures and ramifications of the carotids and iliacs have much to do with the production of that wheel sound (*bruit de roue*), which is so striking when the stethoscope is applied along the carotids of young females labouring under chlorosis and amenorrhœa; and with the more reason, as this state of disease is always accompanied by excitation of the heart, whose pulsations project the blood with greater force towards the head.

There is another peculiarity, which, it appears to us, ought to concur powerfully in the production of this phenomenon: this is the diminution in the quantity of blood, which certainly exists in those who are chlorotic, and in whom nutrition is feeble and hæmatis languid. I may deceive myself, but it seems to me that the blood, being in less quantity, must run through the vessels with more rapidity, and give rise to more friction. Does it not frequently happen that the pulse is more rapid after blood-letting, which must have diminished the quantity of the circulating fluid? In support of the explanation given here, we may invoke the experiments made by Hope on dogs. Having laid it down, that, when accidental sounds occur in the heart and arteries, there is increase of friction *dependent upon a change in the circulation*, he expresses himself thus:—Eight or ten dogs were bled more or less frequently from one to ten times, and at intervals of from twenty-four to seventy-two hours. The results were, that the day after the first or second bleeding, carried to eight or ten ounces, the sound of the systole of the heart, previously strong and clear, was accompanied by a bellows sound; the impulsion was increased, and became quick and precipitate, and the pulse frequent and jerking (*saccadé*). These symptoms augmented to their extreme point at the fourth or fifth bleeding; the bellows sound then became very strong, the pulse

bounding, the cat tremor (*frémissement cataire*) very marked, and the arterial pulsations perceptible, not only when the finger was applied over a large artery, but also when a considerable part of the surface of the body was embraced by the hand. Besides, the bellows sound was distinctly heard when the stethoscope was applied over a large artery—as the femoral, carotid, &c.¹

As for the encephalic bellows sound—caused, it is said, by engorgement of the organs contained in the cranium, according to Fisher²—we have endeavoured, but in vain, to detect it in cases analogous to those spoken of by the Boston physician. M. Baudelocque, physician to the *Hôpital des Enfants Malades*, has not been more successful. We apprehend, indeed, without however affirming it to be so, that the American physician has committed an error, in taking for a phenomenon *sui generis* the resounding of the respiratory murmur, partly in the nasal fossæ and fauces, aided by the velum palati, and transmitted to the ear, applied to the top of the head through the bones of the cranium. The following, however, is the way in which Doctor Fisher explains this new bellows sound:—*It is seated in the arterial trunks at the base of the skull, when they are compressed by the brain, which happens whenever that viscus is pressed upon by an extravasation of fluid, or augmented in size by any inflammatory effusion. The calibre of the arteries is then diminished; the blood circulates in them with difficulty, and it is this impediment (gêne) to the circulation, and the friction of the blood against the sides of the vessels, that produces the encephalic bellows sound.*

BILIARY CALCULI.

RESEARCHES AND OBSERVATIONS ON THE SYMPTOMS PRODUCED BY BILIARY CALCULI RECENTLY FORMED, AND ON THE BEST MEANS OF HEALING THEM.

There are, doubtless, few physicians who have not observed the formidable symptoms produced, at long intervals, by biliary calculi, when the parietes of the gall bladder that incloses them, or those of the ductus communis choledochus, along which they sometimes pass, have not become accustomed to their painful contact; yet these symptoms, to which may be added those that supervene at the same time in the functions of the liver, have not been appreciated and described in a proper manner. Durande published, in the Transactions of the Academy of Dijon, a memoir on this subject, but it is to be regretted that the facts contained in it have been

¹ Treatise on Diseases of the Heart and Great Vessels.

² Medical Magazine, No. 15.

collected with so little care. The author had seen several cases, but he rarely entered into detail. He was, moreover, deceived regarding the effects of the remedy, which subsequently bore his name. Many authors, also, speak vaguely of bilious colic, which they regard as an epidemic disease, and attribute it to every cause except to biliary calculi. Practitioners have confounded the excessive pain caused by them with saturnine and vegetable colic¹—sufferings proceeding from certain affections of the spinal marrow, as yet but little known. In short, the most recent works on diseases of the liver, and its connections, present nothing satisfactory on this matter.

The thirty-seventh letter of Morgagni, on "Jaundice and Biliary Calculi," contains a multitude of facts and learned researches; but the authors profusely cited by the learned pathologist had afforded him but imperfect cases—sterile as regards the signs of calculous affection at its commencement, and null as regards the treatment.

We have, consequently, thought that it might be useful to attract attention to this point of practical medicine; and that we might enable young practitioners to detect more easily the acute suffering caused by biliary calculi, which have been generally examined in their relation with chemistry, rather than with physiology and pathology. We shall begin with the detail of the cases—the facts that serve as a basis to this memoir.

CASE I.

Age twenty-six years—Protracted and acute mental distress—Repeated attacks of acute pain in the back and epigastrium—Bilious vomiting—Jaundice—Bathing—Bleeding—Antispasmodics—Narcotics—*Remède de Durande*—Purgatives—Cure after ten months' treatment—Excretion of a large quantity of biliary calculi—Two relapses—Fresh cure by the application of ice.

Madame M***, aged twenty-six years, of strong constitution and marked bilious temperament, and of timid disposition, which masked impetuous feelings, had been, from the age of eighteen, a constant prey to the depressing passions, in consequence of an unhappy marriage. In seven years she had experienced four distinct paroxysms of violent vomiting, the last of which was accompanied by the most severe symptoms. It forms the subject of the present history.

When the paroxysms which preceded this occurred, she had suffered for one or two days with violent pain in the back and epigastrium, after which she vomited three or four times a clear greenish bile, with considerable and painful retching. The pains continued to diminish for two or three days, after which she was completely restored, without having had the least fever.

On the 21st of July, 1821, after having suffered during the previous evening under the pain above mentioned, she vomited three different times, and with much retching, a quantity of yellow, thick bile. In the following days the digestion was slow and

¹ Colica pictonum.—*R. D.*

difficult ; she had violent pain in the stomach, and every thing indicated that the paroxysm had not terminated in the usual manner. Indeed, after eight days indisposition she vomited a small quantity of yellow, thick bile ; in the following night she was attacked with shivering and pain in the right hypochondrium ; the next day the skin and eyes were of a yellow hue ; pulse frequent ; headache, &c. She was allowed for drink veal water, and a mixture containing a few drops of ether and laudanum. On the third day she felt relieved, but the jaundice had increased. This circumstance satisfied me that all the symptoms were caused by biliary calculi.

On the fourth day, (July 24th,) the jaundice disappeared almost entirely, with copious fetid perspiration, which tinged the *chemise* yellow ; the urine was yellow, thick, and had an oily deposit ; the pulse was not febrile, or the right hypochondrium in any respect painful.

She remained tolerably well until the fifth of August following, when the pains in the back and right hypochondrium returned, as well as the vomiting of green bile. The vomitings frequently recurred, and, in the intervals, she suffered excessively ; she could neither lie down nor sit ; but was compelled to remain with the body bent forwards and doubled up, with the hands pressing strongly on the contracted abdomen. Every moment she felt chills, which ran over every part of the body.

On the following day—the 6th—the pulse was contracted ; she had acute pain in the epigastrium and in the region of the liver, which extended to the right shoulder. The abdomen was soft, and the biliary apparatus did not appear to be the seat of engorgement.

Prescription.—Chicken water *emulsionné* ; eighteen leeches to the anus ; a mixture with lettuce water, syrup of lemon, carbonate of potassa, and a few drops of laudanum. Repeated emollient clysters.

On the 7th, marked relief ; pulse developed ; skin cool ; but the tongue was yellowish, with bitter taste in the mouth ; dull pain and feeling of fatigue in the muscles of the abdomen.

Prescription.—Warm bath ; emollient cataplasms to the right hypochondrium ; continuation of the poppy clysters. The remains of this paroxysm gradually passed away, so that Madame M*** was able to continue suckling her child, of which she had been delivered six weeks previously : but soon afterwards, contrary to custom, there supervened, at very short intervals, pains in the epigastrium, hypochondrium and shoulder of the right side. Slight paroxysms came on, which, with the fatigues of suckling, slowly reduced her, so that she was compelled to send her child to nurse. This determination, undertaken with the best views, instead of relieving, affected her severely, and was the cause of a fresh paroxysm, during which leeches were applied twice, once to the right hypochondrium, and once to the epigastrium ; the remedy of Durande was likewise administered twice. The symptoms be-

came speedily relieved, and the cessation of lactation gave rise to no other derangement.¹

A violent attack occurred again on the 3d of December following. For four or five hours, during which she suffered almost unheard of pain, she vomited several times as usual. She felt in the right side, back and epigastrium, a sensation of tearing, which did not permit her to make the least movement, and compelled her to remain on the back, with her knees raised and kept as close as possible to the trunk. The paroxysm terminated soon on the following day by general jaundice, as had frequently happened. The remedy of Durande was suspended, and simple ethereal mixtures were alone administered. In the course of December she had also several paroxysms, but especially on the 31st. At this time, she was taken with violent vomiting, and intolerable pain in the back, which continued all the night, and constrained her to remain in the sitting posture, the chest supported on the knees, in a state of constant balancing, which alone rendered the pain supportable. This attack was followed by jaundice.

Prescription.—A mixture with laudanum and castor; opiated plaster of hemlock to the epigastrium.

In the course of January the paroxysms appeared with a degree of regularity every week, and during the day; previously they had occurred during the night. Leeches were applied to the vulva, to act as a substitute for the catamenia, which returned two months after the child had been separated from her; in other respects the symptoms were nearly the same, with some variation in their intensity.

Finding that bleeding, narcotics in various forms, as well as the remedy of Durande, had no permanent success, I decided on administering cathartics, which had been recommended in such cases by some authors, and of which I had hitherto dreaded the effects. Towards the end of January I gave her a purgative mixture, composed of two drams of senna, two drams of sulphate of soda, and an ounce of syrup of buckthorn, in four ounces of a vehicle. This mixture at first induced severe pain, and afterwards copious evacuations, in which were found a great many small biliary calculi. These were of very small size, round, irregular, of a brown colour, and very friable. Some days afterwards she passed a number more. From this time, Madame M*** felt much better, her paroxysms disappeared, and the frightful emaciation to which she had been reduced was replaced by her habitual *embonpoint*.

About two years after her cure she had another attack of this dreadful disease, which I removed speedily by the application of ice to the right hypochondrium. In the month of October, 1824, she had another severe paroxysm, which likewise yielded speedily to the application of ice. From this time she has not suffered: she has had several children, and is in excellent health.

¹ The *Remède de Durande* consists of two parts of essential oil of turpentine, and three of sulphuric ether. The ordinary dose is two scruples.

CASE II.

Age forty-five years—Depressing passions—Acute and deep-seated pain in the epigastrium, returning in paroxysms for several years, and with horrible suffering—Unsuccessful employment of various means—Cure obtained by the application of two bladders containing pounded ice.

Madame R^{***}, aged about 45 years, had suffered for a long time, at distant intervals, under violent and deep-seated pain, which she referred to the epigastrium. When she had these attacks she was obliged, like the patient of whom we have just spoken, to hold herself bent double, with her hands applied to the abdomen to compress it, this being the only means that rendered her sufferings supportable. Thus she would remain for many hours, calling aloud for succour. The disease disappeared to return at the end of some months, without there being any diminution in the paroxysms. I was called to this lady in one of her attacks, and having been told by one of her relations that she had been widowed at an early age, and had long laboured under attacks of hysteria, I at first had no fixed idea respecting the nature of the disease, especially as I did not discover in other respects the character of the disease which they had mentioned to me. My treatment was therefore purely empirical. After different means which were attended with no more success than those that had been already employed, I thought of applying a bladder of pounded ice to the epigastrium, and a similar one behind, opposite to the former. This produced, as may be conceived, a sense of extraordinary cold, which at first only modified her sufferings; but she was much surprised to feel no longer the pain that had tormented her for thirty-six hours, when the ice was entirely melted, and the fluid resulting from it was raised to the temperature of the body. From this time Madame R^{***}, who scarcely ever passed a few months without an attack, to use her own expression, did not have them for five years afterwards. Being called in again, I had recourse to the same means and with like success.

It was not till long after the first time I had attended Madame R^{***}, and whilst I was visiting the subject of the preceding case, that on reflecting on the nature of the affection I could refer its symptoms to biliary calculi. I satisfied myself of the etiology the second time that I saw this lady. I then remarked, what I doubtless ought to have done previously, that she was of a highly marked bilious constitution; that the hue of her skin was habitually yellow, that she was very irascible, and had been several times affected with jaundice after her attacks.

CASE III.

Age sixty-seven years—Acute pains in the umbilical region—Vomiting of blackish matter—Cessation of the symptoms—Relapse in the following year—Cessation of the disease with the discharge of a considerable number of biliary calculi excited by a cathartic clyster—Second relapse—Same treatment by the aid of cathartic enemata.

M. M., formerly bookseller, aged sixty-seven years, of good constitution, having every attribute of the bilious temperament, had

led a laborious life, but it had been crossed by reverses of fortune, which in his latter years had affected him the more, as his advanced age left him but little hope for the future.

In the month of April, 1828, he felt, for the first time, very severe pain in the umbilical region, which was treated by emollients and the application of leeches. The indisposition appeared to be ended when, in the middle of the night of the 19th or 20th, a new invasion of abdominal pain caused, for five or six hours, indescribable suffering, which he succeeded in assuaging by anointing with oil mixed with a large proportion of laudanum. On the following day, after he had bathed a few times, I explored the abdomen, and discovered that the epigastrium was painful on pressure, and that there was a preternatural resistance in the direction of the pylorus. This exploration made me apprehend that there was some organic lesion in the stomach, although a disease of that kind is not commonly accompanied by such acute suffering as that which I have mentioned. These fears were strengthened, when the patient complained of a feeling of heaviness in the stomach, experienced frequent nausea, and at length vomited a large quantity of mucous matter. The vomiting subsequently recurred at different intervals, the rejected matters having a blackish hue, although he was kept upon a rigid diet. Different means, among which I may mention frictions with the ointment of tartarised antimony on the epigastrium, bathing, and some opiated local applications, removed the symptoms, and also the unequal and resisting tension, which I had discovered in the epigastrium.

In the month of July, 1829, violent pain was again felt in the abdomen. It was more particularly seated in the right hypochondrium, whence it seemed to spread to different parts of the abdomen. It was soon followed by vomiting of bilious mucous matter, with the remains of food. Not finding the epigastrium tense, or painful on pressure, as in the preceding year, and reflecting on the sudden invasion of the symptoms and the disorder of the stomach, which, a short time before had fulfilled its functions well, I was led to think that all this morbid condition of the apparatus was caused by the presence of biliary calculi in the gall bladder or choledoch duct. The event soon confirmed this presumption. The patient having taken a purgative enema immediately after a paroxysm of pain, passed *per anum* a large number of small concretions, which, when separated from the excrementitious matter, had the shape of biliary calculi. They were indeed proved to be such by M. Chevallier, who was so good as to analyse them.

It would be difficult to describe the acute pain, which formed the principal sign of the disease that occupies us. It was analogous to those horrible colics which strike the nervous system deeply, and cause an undefinable feeling of indisposition—of anguish—of fatal presage. During the attack, the abdomen was painful, contracted, and formed a kind of floor, (*plancher*;) which did not permit the state of the abdominal viscera to be explored; the features were greatly changed; seated upon his chair he com-

pressed the abdomen forcibly with his arms, and adjusting himself to discover a supportable position; the pulse was not frequent nor the skin hot. This state of suffering commonly terminated by vomiting of bilious or mucous matter. After the attack he could scarcely keep on his legs, and felt, as it were, annihilated. He also suffered under obstinate constipation, which frightened him greatly, making him imagine that he had a stoppage of the intestines.

I had recourse, as in the preceding year, to the employment of bathing, anodyne and antispasmodic drinks; milk diet; Seltzer water, alone or mixed with beer; and I directed, besides, the *Remède de Durande*, of which he made use for a long time, but irregularly. At the end of each attack, which returned every week or thereabouts, I commonly administered a powerful cathartic enema, which caused the evacuation of some biliary calculi of a small size, and which, when examined with a lens, were of a rhomboidal shape.

At the end of about six weeks, the symptoms wholly ceased; the restoration of the functions of the bowels was, as in the previous year, the signal of cure.

In the month of June, 1830, the patient experienced fresh attacks, with the ordinary accompaniments of severe pain, and a degree of depression, felt so much the more as the second relapse seemed to him to remove all hope of cure. At the termination of the first paroxysm, a goodly number of biliary calculi was found in the evacuations produced by a purgative clyster. The premature relief which he experienced persuaded him that he would be free from another paroxysm, and that the severe regimen of former years would be unnecessary; but he was cruelly deceived by the return of a violent paroxysm, which only yielded to the application of leeches, followed for a fortnight by the severe regimen already mentioned, during which Durande's remedy was sedulously administered, conjointly with Seltzer water as drink, and milk as the only aliment.

In the last days of July he did not feel entirely restored from his relapse; the abdomen was not yet free; but diarrhœa of twenty-four hours duration, caused by the events of the three memorable days, entirely restored him to health.

Since 1830, M. M. has had two slight attacks of his disease, which is yielding yearly.

I owe to the friendship of Dr. Salone, my former colleague in the fourth dispensary, the following case of formidable symptoms, produced by biliary calculi, one of which, of considerable size, was discharged by vomiting. I know no case of biliary calculi so complete as this.¹

¹ Morgagni, in the letter which we have cited, relates some cases in which concretions were rejected by vomiting; but the want of chemical analysis gives rise to some doubts as to their nature: he calls them biliary calculi.

CASE IV.

Age forty-nine years—Depressing passions—Acute pain in the back, and hypochondria returning in paroxysms—Vomiting—Syncope—Blood-letting—Opiate baths—Rejection by vomiting of a biliary calculus—Employment of acetate of morphine by the endermic method.

Madame G., widow, aged forty-nine, of bilious constitution, mother of two children, leading a sedentary life, had been for a year a prey to the depressing passions. In the course of January, 1833, she was seized, on the approach of menstruation, which had previously taken place with perfect regularity, with very violent pain in the epigastrium, extending between the shoulders and towards each hypochondrium. These pains were soon accompanied by mucous and bilious vomiting, followed by syncope and unquenchable thirst. Urine scanty and red; constipation obstinate.

On the first of June this lady presented herself at the dispensary with the following symptoms:—excessive pain in the epigastrium, with sense of laceration. This part was so painful that it could not bear the least touch; it was tense, without its being possible to distinguish by the feel the particular tumefaction of any important organ of the region. The *crises* were violent, accompanied by loss of feeling; the cheeks were red; the *contour* of the eyes yellow; the extremities were cold; the body was covered with a cold perspiration; she was delirious and loudly invoked death. The treatment adopted until this time, and the only one that afforded any relief, consisted in the methodical employment of general and local blood-letting, antispasmodics, and opiates internally and externally in baths. The same treatment was continued, with modifications suggested by circumstances. Thus, leeches applied to the vulva at the time of menstruation, aided by revulsive pediluvia, afforded relief, but did not prevent the *crises* from becoming more frequent, and from being accompanied by more serious symptoms, and especially by one characterised by retraction of the parietes of the epigastric region, in which a middle sized orange could be placed. The vomiting continued, as well as the constipation. Suddenly, in one of these crises, Madame G. passed by the mouth, along with muco-bilious matter, a round body of the size of a small hazlenut, of a greenish yellow colour; of the consistence of clay slightly dried, and easily bruised. The expulsion of this extraneous body was accompanied by violent colic, followed by copious evacuations, consisting of muco-bilious matter, which contained a great quantity of broken down solid matter, similar to that of the foreign body just mentioned. This *crisis* produced but very little relief. The *crises* were a little more rare; and the patient daily more enfeebled: at length, on the 15th of August, a terrible *crisis* occurred, accompanied with copious vomiting of liquid matters, having a reddish hue somewhat similar to the bleaching liquid, (*eau de javelle*.) without, however, possessing its chemical characters. All the means hitherto used for relieving

such symptoms, were without effect; and it appeared that the event must be fatal.

In this state, a large blister was placed over the region of the stomach; and the cuticle being removed after it had been applied eight hours, a quarter of a grain of acetate of morphine, mixed with a small quantity of cerate, and spread upon a beet leaf, was applied to the denuded surface. An hour afterwards, the symptoms were less violent, and had almost wholly ceased. On the following day, towards morning, the pain returned, but with little less intensity. These applications were continued for five days, with increasing success. She recovered sleep, which she had lost for a long time. Even in the day time, there was a degree of somnolency which indicated the effect of the acetate of morphine; but the vesicatory at this time became so painful that it was necessary to heal it. The improvement continued, and the cure proceeded apace. At length, after protracted restriction to diet, she was able to take a little cold milk and water; when taken boiled it was not digested. At this time more substantial food was necessary, but its employment and choice had to be regulated, as the stomach had still very great susceptibility. The use of *Vichy water*¹ completed the cure.

The extraneous body of which we have spoken, when subjected to chemical tests, presented all the characters of a biliary calculus, chiefly composed of adipocire.

CASE V.

Age twenty-six years—Amenorrhœa—Chronic periodical epigastralgia—Paroxysms of lacerating pain in the right hypochondrium, with simultaneous affection of the same side—Bleeding—Antispasmodics—Opiates—*Remède de Durande*—Cathartics—Cure after the excretion of a great number of biliary calculi.

A young lady, twenty-six years of age, had complained, for a long time of various pains, which returned periodically. As they were felt in the vicinity of the epigastrium, it was believed that she was affected with hysteria. On consulting M. Gardanne, and having informed him that her father had died of disease of the liver, she herself being of a very bilious temperament, he suspected that biliary calculi might be the cause of her sufferings, which had hitherto been unknown to, and unexplained by, the physicians she had consulted.

During the crises, or rather the paroxysms of this affection, she complained of lacerating pain in the right hypochondrium. The slightest pressure on this part was insupportable; at times, the shoulder of the same side was also painful; she could neither move nor lie in her bed, but was obliged to hold herself doubled up, (*pelotonnée*), changing her posture every instant, and having no quiet, excepting when the knees were brought close to the trunk, and the abdomen was compressed. She was affected, moreover,

¹ These waters are carbonated chalybeates, and almost all the springs are thermal. They are employed as tonics, particularly in chronic affections of the abdominal viscera.—*R. D.*

with amenorrhœa, emaciation, and great alteration of the features. The duration of the paroxysms was commonly from twelve to fifteen hours, during which she endured sufferings the most acute, and sent forth the most piercing cries. Sometimes they continued longer. One lasted three days, and threatened to destroy her.

After agents so numerous that it is impossible to attribute to any one more action than another,¹ she passed, *per anum*, several biliary calculi, of the size of the head of a large pin, which, when thrown upon coals, were converted into an oily matter, attended with a very vivid flame, and slightly mucous smell. Laxative drinks, and cathartic clysters provoked the discharge of fresh calculi, and the patient was not long in recovering, after a periodical series of unpleasant symptoms, so severe as to cause her life to be in danger.

SYMPTOMS THAT INDICATE THE PRESENCE OF BILIARY CALCULI.

The signs that announce the existence of recently formed biliary calculi are, in the beginning, very vague and uncertain. The patient almost always complains of pain in the epigastrium, and corresponding part of the back; at other times, vomiting recurs at intervals, and soon becomes periodical, as well as epigastric pain, which has sometimes caused the disease to be confounded with hysteria. The subjects of biliary calculi have a yellowish tint, which indicates that the hepatic apparatus is active; but this particularity is met with so often in those who enjoy perfect health, that it cannot be of essential aid to the practitioner. The pain of the back, of which we have spoken, extends at times to the right breast, neck, and shoulder, or else it follows the direction of the hepatic nerves. These symptoms, which the physician has often no opportunity for observing, are but the precursors to others more serious: soon, indeed, the pains recur and increase; the epigastrium and hypochondrium become so painful that they can scarcely bear the contact of the slightest clothing; and vomiting of pure bile, with a yellowish hue of the skin and eyes, reveal the great disorder of the biliary apparatus. Jaundice, accompanied by acute suffering, the absence of inflammation and fever, induce, at the same time, the suspicion that the cause of this great disorder is mechanical irritation produced by calculi.

In proportion to the duration of the disease, it has a tendency to become periodical, returns at uncertain intervals, and is incessantly aggravated. I have seen paroxysms of this terrible affection not allow of a moment's rest; the patient perpetually endeavouring to find a posture which may mitigate his sufferings. Some are constantly agitated, and tormented by inexpressible anxiety; others sit bent forwards, or writhe, pressing strongly on the epigastrium, or balancing themselves backwards and forwards to relieve their anguish. The face is much changed; the eyes surrounded with

¹ She successively made use of ether; of the *Remède de Durande*; opium; cathartics; and the *eau de Vichy*. She was bled and had leeches applied several times.

a dark circle (*cernés*); the stomach can neither bear food nor drink; the throat is dry, painful, and constricted; the tongue yellowish; the mouth clammy, with a bitter taste of bile. There is usually constipation; the urine is yellow, thick, and contains an oily, blackish sediment; and the perspiration, when it exists, tinges the linen yellow. The paroxysms are of short duration at the commencement of the disease, but they soon become longer, may continue for several days in succession, and put the patient's life in danger: this occurred to the young female, the subject of the fifth case. After these protracted paroxysms, fever and unequivocal signs of hepatitis sometimes appear, followed by great emaciation—the inevitable result of the pain—insomnia, and the impracticability of taking nutritive substances. Very often, either in consequence of long continued paroxysms or of cathartics, a great number of calculi are passed by stool, as may be seen in the first, third, and fifth cases; and they may be rejected by vomiting, as is proved by the fourth case.

The expulsion of calculi unquestionably constitutes the pathognomonic sign of the affection we are considering; and as the patient is singularly relieved by their expulsion, it may, on the other hand, be rationally concluded that the calculi are the cause of the sufferings: consequently, their excretion ought to be esteemed a certain presage of the cessation of the disease.

The complaints and lamentations of those affected with biliary calculi—the sufferings of which they anxiously speak—lead to the belief that their condition is one of the most painful that can be conceived: it would be intolerable, said a sick person once to me, had I not the hope that it must soon terminate.

If very protracted paroxysms leave evidence of their occurrence, short paroxysms, which are the most frequent, are not followed by any disorder; the suffering is gone as soon as the paroxysm is ended, and the patient quickly resumes his accustomed occupations.

Jaundice, when it exists along with them, is soon dissipated, as well as the other symptoms; the digestive passages alone preserve, for some time, a susceptibility which demands attention and an appropriate regimen.

The consequences of the presence of recently formed biliary calculi are rarely fatal; the organs that contain them ultimately become accustomed to their presence, and completely insensible to their contact: frequently, indeed, the gall bladder after death is found filled with calculi, of which no symptom—at least no recent symptom—had revealed the existence during life. How many persons of bilious temperament assert, that they have been subject, during their youth, to colics termed bilious, which they have not experienced since, or only a long time ago! These colics were induced by calculi, the presence of which has become altogether insensible.

If it occasionally happens, that old biliary calculi produce local symptoms, or an external phlegmasia—as in the cases in which J. L. Petit proposed to cut into the tumour to cause their exit

externally—these cases are uncommon, and evidently form an exception.

TREATMENT OF SYMPTOMS CAUSED BY BILIARY CALCULI.

The most judicious and best combined antiphlogistic and sedative treatment has no hold on the serious symptoms produced by recently formed biliary calculi. Baths, blood-letting, and emollient embrocations, are prescribed in vain, as well as the internal use of emulsive drinks with nitre, chicken water, lettuce water,¹ anodyne mixtures, &c. I have seen paroxysms of this cruel disease recur for several weeks in succession, without any of the means mentioned having produced any benefit. The *Remède de Durande*, of which we shall soon speak, has not succeeded better under the same circumstances; at times, indeed, it has but irritated the patient and induced vomiting. It has been seen, in the first case, that a cathartic, administered at the termination of a long paroxysm, occasioned the evacuation of a number of small calculi, and put an end to the sufferings of the patient. M. M., the subject of the third case, noticed that his disease constantly terminated under the influence of a cathartic clyster, composed of an ounce of sulphate of soda, an ounce of senna, and a dram of tincture of rhubarb. Cathartics, it seems to me, ought only to be administered about the end of the disease, as, it is to be feared, they might be rejected at the commencement, and only add to the sufferings of the patient. It is to be presumed, moreover, that they can only cause the expulsion of the calculi when in the duodenum, which can scarcely happen at the invasion of the disease.²

To prevent cathartics from being rejected by vomiting, they might be administered in the way of friction. I have employed the croton oil in this manner. The following fact, communicated to me by M. Delarroque, my colleague at the Hospital Necker, proves that we ought not to be timid in the employment of cathartics, notwithstanding the remark of Morgagni.³ He was called to a lady forty-three years old, who had suffered for thirty-three months under a paroxysm of the disease which we have just described. These paroxysms returned every ten or twelve days. This lady was in the last degree of exhaustion, and had been bled several times. M. Delarroque discovered, in the right hypochondrium, a tumour extremely painful on pressure, and which he judged to be caused by biliary calculi. Notwithstanding the repugnance of the relations, he administered drastic cathartics, which produced the evacuation of a large quantity of blackish, pitchy matter, and a

¹ The distilled water of the *Lactuca Sativa* or "Garden Lettuce" is officinal in Paris. It is probably entirely inert.—*R. D.*

² This is not logical. When the calculi have once cleared the choledoch duct, and entered the duodenum, the mischief is over. Besides, the author is not consistent with himself; farther on will be found a far more satisfactory exposition of the *modus operandi* of cathartics in these cases.—*R. D.*

³ Epist. 37, No. 49.

multitude of biliary calculi—some entire, and others in fragments. From that time the patient was cured.

Until the period of choice for the use of cathartics arrives, much time frequently elapses, during which the patient anxiously calls for aid. Opiates and antispasmodics, in all forms, are then laid under contribution. It was in one of these critical circumstances that I advised the application of pounded ice with success. (Cases 1 and 2.) It is an efficacious means which calms on the instant the sufferings, and may doubtless postpone their return, if it cannot remove them altogether—a thing much to be desired, until the period arrives when it is fitting to employ cathartics; for, unquestionably, we have no means capable of dissolving biliary calculi which form in the gall-bladder, although such means have frequently been proposed.

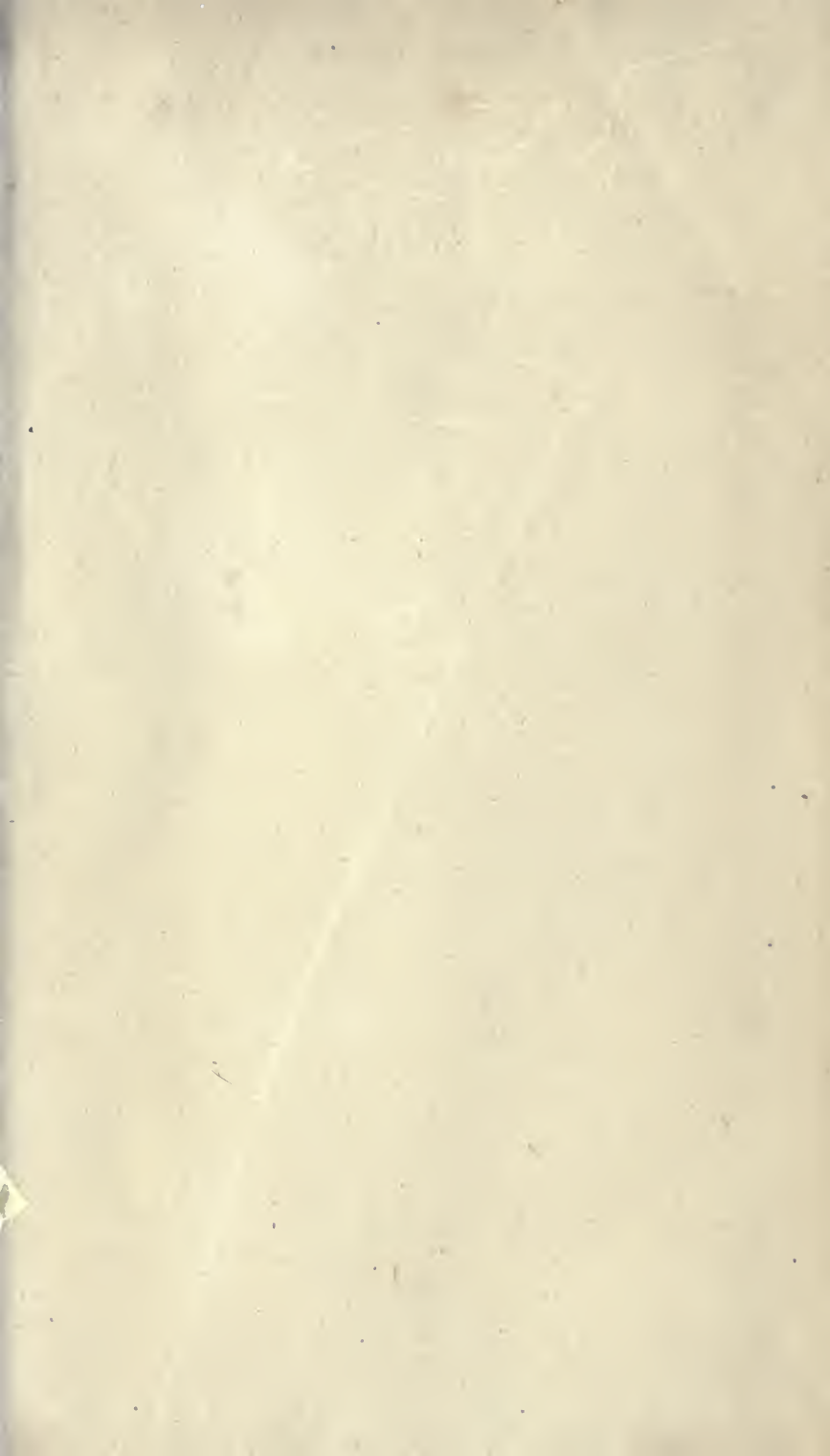
At a time when chemistry, regenerated, flattered us with the hope of changing the face of medicine, it was believed that substances which dissolve biliary calculi in the apparatus of a laboratory might have the same action within the human body; and the celebrated Fourcroy—one of the chemists who indulged the fairest and most sincere expectations on this matter—did not doubt that ethers, fixed and volatile oils, the alkalies, some soaps, &c., when properly administered, had the property of attacking efficaciously the calculi of which we are speaking. It was in accordance with those ideas, perhaps, that Durande, a physician at Dijon, fancied that the object might be attained by means of three parts of sulphuric ether, and two parts of essence of turpentine, administered in a small dose (2 scruples). This remedy has been very much vaunted, not only by its author, but likewise by Sömmering, Richter, and others, who attribute to it, unhesitatingly, the property of dissolving biliary calculi. Durande goes so far as to say that he has seen calculi, passed by stool, dissolved and transformed into a whitish matter similar to pitch (*poix*). But admitting, what appears to be contested by a considerable number of facts, that the remedy of Durande provokes or facilitates the expulsion of biliary calculi in certain cases, by allaying the spasms of the parts that contain them, can we admit that it has likewise the faculty of dissolving them? We think not; and in this we accord with several physicians, who have judiciously remarked, that, as ether is volatilised at a temperature very inferior to that of the stomach, its rôle must be quite secondary when it attains that viscus. On the other hand, the “remedy” causes symptoms which oblige it to be suspended, as has happened to myself. Moreover, there are several patients whose digestive organs are too irritable to bear this remedy at every period of the paroxysm; and, again, it is certain that this agent alone is almost always insufficient to occasion the expulsion of the calculi: cathartic clysters, baths, &c., have to be added. Sometimes its action has been attempted to be moderated by giving, as an excipient, some distilled water and a mucilaginous syrup.

Haller frequently had recourse to opium to allay the spasms and pains of the affected parts. I have very frequently used them, but

almost always with transient success. I have often had to congratulate myself on the administration of the tincture of castor, in small doses, in antispasmodic mixtures.

It is, doubtless, by impressing succussions on the digestive organs, and on the biliary apparatus in their vicinity, that cathartics facilitate the expulsion of calculi. The majority of those who have employed the remedy of Durande have not failed to follow it up by the administration of some cathartic enemata, Seidlitz-water, or magnesia. It has also been advised, I scarcely know why, to add the use of chalybeate and saline mineral waters—as those of Vichy, Plombières, and Balaruc; and it has been said—again, it appears to me, on no very solid foundation—that it is well to terminate the treatment by the use of tonic extracts, bitters, the juices of herbs, &c.—everlasting remedies, empirically employed, without any regard being paid to their action on the animal economy.

THE END.



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